

TECHNICAL MANUAL

USER'S GUIDE

**Principal User Processor/Radar Product Generation
Operational Position (PUP/RPGOP)**

**DOPPLER METEOROLOGICAL RADAR
WSR-88D**



**UNISYS CORPORATION
CONTRACT 50-DMNW-8-00032**

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FOREWORD

This technical manual provides operators with an overview of Doppler Meteorological Radar WSR-88D PUP Group. It describes the purpose, structure, and functions of the UCP and discusses the operating concepts. This manual was prepared in accordance with the content requirements of MIL-M-38798B and the format requirements of MIL-M-38784B, as amended by TMCR AF TM-86-01/NEXRAD (June 1987). It consists of a cross reference of commands, introduction, thirteen chapters, and nine appendices.

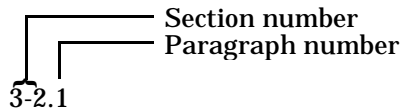
- Chapter 1 [Use of Graphic Tablet and Displays.](#)
- Chapter 2 [Use of Alphanumeric Terminal.](#)
- Chapter 3 [Help.](#)
- Chapter 4 [Request and Control Of Products.](#)
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Appendix J PUP USER'S GUIDE INDEX.

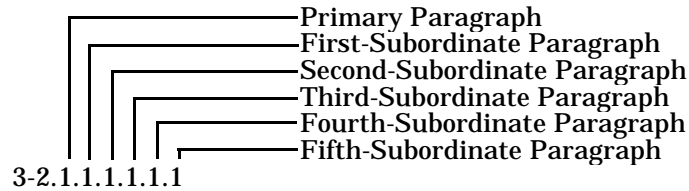
This manual is one of a family of technical manuals which provide various levels of description, operation, maintenance, and logistics information on the WSR-88D. Refer to TO 31-1-141, Basic Electronic Technology and Testing Practices, for any basic electronic technology or testing practice that is not fully described in these documents. The WSR-88D technical manual family is defined and discussed in the System Manual, NWS EHB 6 500, Section 1-4.

The format of this technical manual is as follows:

- Since sections represent the major content divisions of the chapter, they are formatted as physically-separate standalone elements.
- Sections are numbered as subdivisions of the chapter or appendix. The section numbering system consists of two digits separated by a hyphen. The first digit indicates the chapter, the second digit indicates the section. Thus, Section 3-2 represents the second section of Chapter 3.
- Paragraph numbering is by section rather than by chapter. The basic numbering system consists of three digits, where the first two digits identify the section



- A decimal paragraph number system is used to identify paragraph subordination



- Pages, tables, and figures are numbered by chapter. The number consists of two digits separated by a hyphen. The first digit identifies the chapter. The second digit identifies the page, table, or figure.

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER

ALPHANUMERIC COMMAND	SECTION NUMBER
(AD)APTATION DATA,(A)LERT PROCESSING,<ALERT-AREA>	13-1.2. Alert Processing.
(AD)APTATION DATA,(A)LERT PROCESSING,(T)HRESHOLD VALUES	13-1.2.1. Alert Threshold Values.
(AD)APTATION DATA,(B)BACKGROUND MAP ASSOCIATIONS,<PROD-ID#>	13-1.3. Product to Background Map Associations.
(AD)APTATION DATA,(C)CURSOR HOME LOCATION,<LATITUDE>,<LONGITUDE>	13-1.6. Geographic Cursor Home Location.
(AD)APTATION DATA,(O)OVERLAY ASSOCIATIONS,<PROD-ID#>	13-1.4. Product to Overlay Associations.
(AD)APTATION DATA,<PASSWORD>,(C)COLORS,(C)CANCEL COLOR SELECTION MODE	13-2.3. Product to Color Mix Pairings.
(AD)APTATION DATA,<PASSWORD>,(C)COLORS,(P)PRODUCT,<PROD-ID#>,(C)COLOR SCALE,<screen>	13-2.3. Product to Color Mix Pairings.
(AD)APTATION DATA,<PASSWORD>,(C)COLORS,(P)PRODUCT,<PROD-ID#>,(G)GRAY SCALE,<screen>	13-2.3. Product to Color Mix Pairings.
(AD)APTATION DATA,<PASSWORD>,(C)COLORS,(P)PRODUCT,<PROD-ID#>,(H)HARD COPY	13-2.3. Product to Color Mix Pairings.
(AD)APTATION DATA,<PASSWORD>,(C)COLORS,(S)AVERAGE COLOR SELECTIONS	13-2.3. Product to Color Mix Pairings.
(AD)APTATION DATA,<PASSWORD>,(D)DIAL IN PORT CONTROL	13-2.6. Other User List
(AD)APTATION DATA,<PASSWORD>,ACCESSING PROTECTED ADAPTATION DATA	13-3.1. Accessing Protected Adaptation Data.
(AD)APTATION DATA,<PASSWORD>,(N)ARROWBAND, LINE DEFINITIONS	2-4.5. Other Subcommand Language Edit Screens. 13-2.9. SCIT HDA and TVS Display Parameters.
(AD)APTATION DATA,<PASSWORD>,(O)OTHER USER LIST	2-4.5. Other Subcommand Language Edit Screens. 13-2.7. RPG List.
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(AD)APTATION DATA,<PASSWORD>,(P)PRECEDENCE OF OVERLAYS	13-2.2. Overlay Precedences.
(AD)APTATION DATA,<PASSWORD>,(RCM) PARAMETERS	13-2.5. RCM Parameters.
(AD)APTATION DATA,<PASSWORD>,(R)RPG LIST	2-4.5. Other Subcommand Language Edit Screens. 13-2.8. Narrowband Line Definitions.
(AD)APTATION DATA,(R)ROUTINE PRODUCT SETS,<RPS-ID>,(E)EDIT	4-6.2.1. Edit Adaptation Data Routine Product Set Lists. 13-1.1. Routine Product Set Lists.
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(AD)APTATION DATA,(R)ROUTINE SETS,<RPS-ID>,(RE)REPLACE WITH,<RPS-ID>	13-1.1. Routine Product Set Lists. 4-6.2.2. Replace Adaptation Data RPS Lists.
(AD)APTATION DATA,(R)ROUTINE PRODUCT SETS,<RPS-ID>,(R)RIGHT DISPLAY RATE,<SECONDS>	4-9.3. Adaptation Data Graphic Auto Display Rates. 13-1.1. Routine Product Set Lists.

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(A)RCHIVE,(A)PPEND,(A)UTO ARCHIVE,(N)O ONE TIME PRODUCTS	10-2.4. Continuous Archiving of Products/Maps (Auto Archive).
(A)RCHIVE,(A)PPEND,(B)ACKGROUND MAPS,<rpg>	10-2.5. Archive Received Background Maps.
(A)RCHIVE,(A)PPEND,(D)ATABASE	10-2.1. Archive PUP Product Data Base Capacity.
(A)RCHIVE,(A)PPEND,(O)NE PRODUCT,<prod-name>	10-2.3. Archive a Single Product.
(A)RCHIVE,(A)PPEND,(P)RODUCTS,<start-time>,<start-date>,<end-time>,<end-date>	10-2.2. Archive Products by Time Span.
(A)RCHIVE,(A)PPEND,(S)TATUS FILE	10-2.6. Continuous Archive of Status Messages (Auto-Archive).
(A)RCHIVE,(C)ANCEL	10-2.9. Cancel Archive Function.
(A)RCHIVE,(M)ONITOR PERFORMANCE	10-2.7. Archive Monitor Performance File.
(A)RCHIVE,(R)EAD,(B)ACKGROUND MAPS,<rpg>	10-2.13. Read Archived Received Background Maps.
(A)RCHIVE,(R)EAD,(D)ATABASE	10-2.10. Read PUP Product Data Base Capacity.
(A)RCHIVE,(R)EAD,(O)NE PRODUCT,<prod-name>	10-2.12. Read One Archived Product.
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(C)ONTROL,(B)ACKGROUND MAP VERSION	Section 7-10:. Background Map Version Select
(C)ONTROL,(C)OMLINE,(C)ONNECT,<LINE#>	Section 7-5:. Communication Line Control
(C)ONTROL,(C)OMLINE,(D)ISCONNECT,<LINE#>	Section 7-5:. Communication Line Control
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(C)ONTROL,(R)ESTART PUP	Section 7-3:. Restart PUP
(C)ONTROL,(S)HUTDOWN,(I)MMEDIATE	Section 7-4:. Shutdown PUP
(C)ONTROL,(S)HUTDOWN,(N)ORMAL	Section 7-4:. Shutdown PUP
(C)ONTROL,(T)RAINING MODE,(C)ONNECTED RPG	Section 7-6:. Training Mode Start
(C)ONTROL,(T)RAINING MODE,(D)ISCONNECTED RPG	Section 7-6:. Training Mode Start
(C)ONTROL,(T)RAINING MODE,(E)ND	Section 7-8:. Training Mode End
(C)ONTROL,(T)RAINING MODE,(R)ESUME	Section 7-7:. Training Mode Resume
(C)ONTROL,(W)ER PLANE ASSIGNMENT	4-1.2.6. WER Elevation Angle to Plane Assignments Product Parameter Selection (Graphic and Alpha).
(D)ISPLAY,(A)LPHANUMERIC PRODUCT,<prod-name>	4-2.1. Display Alphanumeric Product Command.
(D)ISPLAY,(A)UTO DISPLAY,(A)LPHANUMERIC	4-10.1. Auto Display - Alphanumeric, Start, Halt.
(D)ISPLAY,(A)UTO DISPLAY,(G)RAPHIC	4-9.1. Auto Display - Graphic, Start, Resume, Halt.

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

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(D)ISPLAY,(C)LEAR QUEUE,(G)RAPHIC	4-11.3. Clear Queue - Graphic.
(D)ISPLAY,(G)RAPHIC PRODUCT,<prod-name>	4-1.1. Display a Specific Product - Graphic. 6-2.1. Quarter Screen/Quadrant Select.
(D)ISPLAY,(GP)GRAPHIC AND PAIRED ALPHA,<prod-name>	4-3.1. Display Paired Product Commands.
(D)ISPLAY,(H)ALT AUTO DISPLAY GRAPHIC	4-9.1. Auto Display - Graphic, Start, Resume, Halt.
(D)ISPLAY,(N)EXT QUEUED,(A)LPHANUMERIC	4-12.1. Display Queued Alpha Product.
(D)ISPLAY,(N)EXT QUEUED,(G)RAPHIC,<screen>	4-11.1. Display Next Queued Graphic Product.
(D)ISPLAY,(P)AIRED ALPHANUMERIC PRODUCT,<screen>	4-3.1. Display Paired Product Commands.
(D)ISPLAY,(T)EST PATTERN,<id#>,<screen>	6-13.1. Display Test Pattern.
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(G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG, (E)NABLE OTH USR,<time>,<date>	12-2.4.1. Enabling Other Users for Message Distribution.
(G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG, (P)UES,<time>,<date>	12-2.3. Distributing a Message to PUES.
(G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG,(R)PG, <time>,<date>,(A)LL	12-2.2. Distributing a Message to the RPG.
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(G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(D)ISPLAY,(B)	12-1.1.2. The Pre-Edit Alphanumeric RCM Product.
(G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(D)ISPLAY,(C)	12-1.1.2. The Pre-Edit Alphanumeric RCM Product.
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(H)ELP,(AL)ERTS	3-2.1. Help Commands.
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(H)ELP,(AN)NOTATE PRODUCTS	3-2.1. Help Commands.
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(H)ELP,(COM)MUNICATIONS LINES	3-2.1. Help Commands.
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(H)ELP,(E)DIT ALERT AREAS	3-2.1. Help Commands.
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CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

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(H)ELP,(HA)RDCOPY COLORS PRINT	3-2.1. Help Commands.
(H)ELP,(H)ELP	3-2.1. Help Commands.
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(R)OUTINE PRODUCT SET,(RE)PLACE WITH ADAPTATION VERSION,<rps-id>	4-6.1.2 Replace Active RPS List

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

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(S)TATUS,(P)RODUCTS IN PUP DATABASE,(DEL)ETE,<LINE#>	4-15.1 Delete a Single Product from Data Base. 8-1.3 Products in PUP Data Base (by ID Number).
(S)TATUS,(P)RODUCTS IN PUP DATABASE,(D)ISPLAY,<LINE#>,<scr-quad>	4-4.1 Display Product from List Command. 8-1.3 Products in PUP Data Base (by ID Number).
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(T)IME LAPSE,(H)ALT	6-1.4 Time Lapse Halt.
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(U)SER FUNCTION,(REN)AME UF TITLE,<new title>	11-4.4 Rename User Function Title.

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

ALPHANUMERIC COMMAND	SECTION NUMBER
(U)SER FUNCTION,(R)EPLACE END,(E)ND	11-4.3 Replace a User Function End Command
(U)SER FUNCTION,(R)EPLACE END, <UF#>	11-4.3 Replace a User Function End Command
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F9: HALT AUTO ALPHA	4-10.1 Auto Display - Alphanumeric, Start, Halt.
F10: SEND RPG REQUEST	4-5.1 Send RPG Request Function.
F11: ALPHANUMERIC HARDCOPY	Section 9-1: Hard Copy
F12: REDISPLAY LAST ALPHA PRODUCT	4-13.6 All Quadrants.
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ACK ALERT	8-3.1 Alert Status Lines (Weather Alerts).
ACK PRODUCT	4-11.2 Acknowledge Graphic Product.
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ALL/ONE SWA	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
AUTO RES/HLT	4-9.1 Auto Display - Graphic, Start, Resume, Halt.
AZRAN R/LAT,LON/AZRAN H	1-1.2 Cursor Coordinate Display Function.
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CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

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CANCEL HELP	Section 3-1: Help From the Graphic Tablet.
CANCEL UF	Section 11-6: Cancel User Function Execution
CENTER AZIMUTH	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
CENTER RANGE	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
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CLEAR SCREEN/QUAD	6-4.1 Clear Screen/Quad.
COMBINE DOWN	6-6.1 Combine.
COMBINE UP	6-6.1 Combine.
CONTINUOUS LOOP	6-1.8 Time Lapse Speed Up, Speed Down.
CONTOUR INTERVAL	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
CROSS SECTION SELECT	4-1.2.5 Cross Section Select Function.
CURSOR AUTO/MANUAL	1-1.4 Cursor Coordinate Display Auto/Manual Function.
CURSOR HOME	1-1.3 Cursor Home Function.
CURSOR HOME DEFINE	13-1.6 Geographic Cursor Home Location.
CURSOR LINK/UNLINK	1-1.1 Cursor Link/Unlink Function.
DATE	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
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CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

ALPHANUMERIC COMMAND	SECTION NUMBER
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DEL RCTL	12-5.1.4 Deleting Alert Rectangles.
DELETE ALERT BOX	12-5.1.2 Deleting Alert Boxes.
DIAL-UP ASSOC RPG	Section 4-5: One-time Product RPG Requests 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). 4-5.2 Non-Associated RPG Requests.
DISPLAY QUEUED PRODUCT	4-11.1 Display Next Queued Graphic Product.
DISPLAY PRODUCT	4-1.3 Display Product Function.
EDIT ALERT AREAS	12-5.1 Editing Alert Areas.
EDIT ANNOT	12-3.1 Editing (Generate) Product Annotations (Graphic).
EDIT MAP	12.4.1 Editing Background Maps.
EDIT RCM PART A	12-1.2.3 Procedure to Edit/Return RCM to RPG.
EDIT RCM PART C	12-1.2.3 Procedure to Edit/Return RCM to RPG.
ELEVATION ANGLE	4-2.1 Display Alphanumeric Product Command. Section 5-1: Product Parameter Definitions
ELEVATION DOWN	4-1.2.1 Elevation Up and Elevation Down Functions.
ELEVATION UP	4-1.2.1 Elevation Up and Elevation Down Functions.
END ERASE	12-3.1.5 Deleting Text, Special Symbols, and Lines.
END LINE	12-3.1.4 Adding Lines.
EXIT EDIT & SAVE	12-3.1.7 Saving Edit.
FILTER	6-5.1 Filter.
FRAME BACK	6-1.6 Time Lapse Frame Back.
FRAME FORWARD	6-1.5 Time Lapse Frame Forward.
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HARD COPY	Section 9-1: Hard Copy
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HIGH DETAIL	12.4.1 Editing Background Maps.

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

ALPHANUMERIC COMMAND	SECTION NUMBER
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LOW ALT	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
LOW PRIORITY	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
LOWER SHIFT	12-3.1.2 Graphic Keyboard Usage While Editing. 12-3.1.3 Graphic Symbols (Special Symbols).
LOWEST ELEVATION	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet).
MAP NAMES: AIRPORT AIRWAY HIGH CITY COUNTY COUNTY NAMES HIGHWAY LFM GRID MIL OPN AREA NAVAID POLAR GRID PRHBTD AREA RADAR SITES RANGE RING RDA RIVER RIVER BASIN RSTRCTD AREA STATE WARNING AREA	6-11.1 Background Map Select.
MAP OVERLAY DELETE	6-10.4 Background Map, Overlay Delete.
MAPS ERASE	6-11.3 Erase Background Maps.

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

ALPHANUMERIC COMMAND	SECTION NUMBER
MAPS FOREGD/BACKGD	6-11.4 Background Maps Fore-ground/Background
MAPS OFF/ON	6-11.2 Background Maps Off/On.
MATCH PARAMETERS	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). 4-1.2.3 Match Parameter Function.
MID ALT	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
NEXRAD UNIT STATUS	8-1.1 NEXRAD Unit Status.
OVERLAY NAMES: ANNOTS ATTRIBUTE COMBINED SHEAR CONTOUR CURRENT CROSS SECTION HAIL MESO STORM TRACK SWP TVS ALERT AREA 1 ALERT AREA 2	6-10.1 Overlay Select.
OVERLAYS ERASE	6-10.3 Overlays Erase.
OVERLAYS OFF/ON	6-10.2 Overlays Off/On.
PAGE ATTRIBUTE	6-10.6 Page Attributes.
PRESET CENTER	6-9.1 Preset Center.
PRODUCT BACK	4-13.2 Product Back.
PRODUCT FORWARD	4-13.1 Product Forward.

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

ALPHANUMERIC COMMAND	SECTION NUMBER
PRODUCT NAMES: ALL SWA PRODUCTS BASE REF BASE VEL BASE SPECTRUM WIDTH COMBINED MOMENT COMBINED SHEAR COMBINED SHEAR CONTOUR COMP REF COMP REF CONTOUR ECHO TOPS ECHO TOPS CONTOUR HAIL LAYER COMP REF AVG LAYER COMP REF MAX LAYER COMP TURB AVG LAYER COMP TURB MAX MESO ONE HOUR PRECIP RCM REF CROSS SECTION SPECTRUM WIDTH CROSS SECTION STM REL VELOCITY MAP STM REL VELOCITY REGION STORM TOTAL PRECIP	4-1.1 Display a Specific Product - Graphic.
PRODUCT NAMES: STORM TRACK SWA REF SWA SHEAR SWA VEL SWA SPECTRUM WIDTH SWP THREE HOUR PRECIP TVS VAD VAD WIND PROFILE VEL CROSS SECTION VIL WER	4-1.1 Display a Specific Product - Graphic.
PRODUCT OFF/ON	4-13.5 Product Off/On.
QUAD 1, 2, 3, and 4	6-2.1 Quarter Screen/Quadrant Select.
RECENTER MAG 1X, 2X, 4X and 8X	6-3.1 Recenter, Magnify.
REDISPLAY LAST PRODUCT	4-13.4 Redisplay Last Product.

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

ALPHANUMERIC COMMAND	SECTION NUMBER
REPEAT COUNT	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
REQUEST MAPS	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
RESTORE DISPLAYED PRODUCT	6-8.1 Restore Displayed Product.
RET	1-2.2.9 Keyboard Area (Top Center).
RPG	Section 5-1: Product Parameter Definitions Section 5-3: Product Parameter Entry Format
RPG 1	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 4-5: One-time Product RPG Requests 4-5.2 Non-Associated RPG Requests.
RPG 2	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 4-5: One-time Product RPG Requests 4-5.2 Non-Associated RPG Requests.
RPG 3	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 4-5: One-time Product RPG Requests 4-5.2 Non-Associated RPG Requests.
SEND RPG REQ	4-5.1 Send RPG Request Function.
SPECIAL SYMBOLS	12-3.1.3 Graphic Symbols (Special Symbols).
SPEED DOWN	4-9.4 Auto Display - Graphic, Speed Up, Speed Down.
SPEED UP	4-9.4 Auto Display - Graphic, Speed Up, Speed Down.
START ERASE	12-3.1.5 Deleting Text, Special Symbols, and Lines.
START LINE	12-3.1.4 Adding Lines.
STOP BLINK	6-10.5 Stop Blink.
STORM DIRECTION	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

ALPHANUMERIC COMMAND	SECTION NUMBER
STORM SPEED	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
TIME	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
TIME LAPSE RES/HLT	6-1.4 Time Lapse Halt. 6-1.7 Time Lapse Resume.
TIME LAPSE 1	6-1.3 Time Lapse Display.
TIME LAPSE 2	6-1.3 Time Lapse Display.
TIME LAPSE 3	6-1.3 Time Lapse Display.
TRANSFER SCREEN PRODUCT	4-13.4 Redisplay Last Product.
UPPER SHIFT	12-3.1.2 Graphic Keyboard Usage While Editing. 12-3.1.3 Graphic Symbols (Special Symbols).
USER FUNCTIONS: UF1-30	1-2.2.1 User Function Selection Area (Top Right). User Function Operations
VAD ALTITUDE	4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet).
VR/SHEAR DISPLAY	6-15.1 VR/Shear Display.
.13 NM	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
.27 NM	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
.54 NM	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions

CROSS-REFERENCE OF COMMANDS/FUNCTIONS TO SECTION NUMBER (Contd.)

ALPHANUMERIC COMMAND	SECTION NUMBER
1.1 NM	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
2.2 NM	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
8 LEVEL	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions
16 LEVEL	Section 4-1: Display Graphic Products (by Parameters) 4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet). Section 5-1: Product Parameter Definitions

INTRODUCTION

The Paramax PUP Man-Machine Interface is designed to meet two separate goals: speed of operation for the experienced user and, of equal importance, friendliness to both the inexperienced and experienced user.

The interface is designed to be self-teaching for the novice with virtually no memorization required for successful operation. Prompts and Help screens are provided for all functions.

The PUP is so designed that even in a fully operational environment there are no functions or sequences of keystrokes that could accidentally be performed at the operational interface which would cause harm or not be easily recovered from. The only areas of system performance which could be degraded by incorrect usage are protected by a password entry requirement. Areas of adaptation data modification which require detailed knowledge for correct modification are also protected.

The operator interface includes the alphanumeric terminal keyboard and screen, the graphic tablet, and the two graphic screens. Operator selections are made at the alphanumeric keyboard, the graphic tablet, and on the graphic screen using the cursor.

In general, virtually all types of graphic displays are available for request and manipulation at the graphic tablet. All other functions such as PUP control, operator definitions, archive control, status requests, adaptation data modifications, detailed help, free text message generation and distribution, and alphanumeric product displays, are available at the alphanumeric terminal. Additionally, a limited amount of graphic screen control, duplicating some functions found in the graphic tablet, is available at the alphanumeric terminal. This provides for both basic PUP functionality in case of graphic tablet malfunction and for those graphic display functions which may be desirable for use in conjunction with other alphanumeric functions, without having to switch interfaces.

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Chapter 1

Use of Graphic Tablet and Displays

The graphic tablet is used for 1) function box selections and 2) cursor positioning for both graphic screens. Function selection is made by positioning the puck cross hairs sight over the desired graphic tablet function box, anywhere within the outlined box area, and depressing one of the four buttons on the puck.

Section 1-1: Puck Usage/Cursor Control

The puck is provided with four buttons. In general, two control the left graphic screen and two control the right graphic screen. The two for each screen operate identically, with the extra button provided solely as a backup in case of button contact failure.

The left/top buttons control the left screen and the right/bottom the right screen for most graphic tablet functions. Some functions, i.e., User Functions and Auto Display Resume/ Halt, listed on the graphic tablet have preassigned screen assignments, and it does not matter which button is used for their selection. The cursor coordinate display function (AZRAN R/LAT LON/AZRAN H) and the cursor mode function (CURSOR AUTO/MANUAL) are also button-independent and will control the cursor coordinate display and mode regardless of which screen the display is on at the time. The acknowledge alert function (ACK ALERT) is also button independent. All other graphic tablet function selections will apply only to the selected screen.

Cursor control for both screens is provided by positioning the puck cross hairs sight in the image tracking area of the tablet (described in paragraph [Section 1-2: Graphic Tablet Layout](#)). Sliding the puck around in this area of the tablet will result in the same relative motion of the cursor on the screen. One (full screen or quarter screen), two (full screen), four (quarter screen), or five (one full and four quarter screens) cursors may appear simultaneously on the two displays depending on the state of the CURSOR LINK/UNLINK function and the two screens (full or quarter). Whenever more than one cursor appears, the cursors are linked.

Whenever the puck is moved outside the image tracking area of the tablet, the cursor will remain somewhere on the screen. If the puck were "slid" off the edge of the tracking area, the cursor would remain at the edge of the master cursor screen or quadrant. If the puck is lifted vertically off the tablet before moving it outside the image tracking area, the cursor will remain at the location where the puck was lifted off. This latter procedure will not hurt anything, but it is not incorporated into normal PUP operational procedures.

Descriptions of the graphic tablet functions CURSOR LINK/UNLINK, CURSOR COORDINATE DISPLAY, CURSOR HOME and CURSOR AUTO/MANUAL complete this section on cursor control.

1-1.1 Cursor Link/Unlink Function.

Selection:

Graphic Tablet (only): CURSOR LINK/UNLINK toggle function

Active

Environment: Always active

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: This a toggle function which will alternate between Link and Unlink of the cursors with each subsequent selection. If both screens are in full screen mode at the time of selection of LINK, a single cursor will appear on both graphic screens. The movement of the puck along the graphic tablet image area will track the movement of the cursor on the screen selected with the LINK function. This is the "master" cursor. When it is in an extreme corner of the image area on the tablet, it will be in the extreme corner of the selected screen. If there are non-geographic displays the movement of both cursors will track together, i.e., at the same coordinate. If there are geographic displays

on both screens and the cursors are linked, then the master cursor will track the tablet image area while the cursor on the other screen will "geographically" track the master cursor. That is, it will be at the same geographic position on both products displayed whatever the difference in geographic display centers and scales. If the geographic position of the master cursor is outside the display area of the product (or background map) on the other screen, then the other screen's cursor will remain somewhere at the extreme edge of the display area.

Cursors may also be linked between a full screen display and a quarter screen display (five cursors total) with either the full screen selected as the "master" or the currently selected quadrant (outlined in green) on the quarter screen display selected as the "master" depending on which puck button is selected for the LINK function.

On the quarter screen display all four cursors will track at the same geographic location regardless of scale or center of each quadrant.

If both screens are in quarter screen display mode and the cursors are linked, then a total of four cursors will appear on the master screen only.

For quadrants without geographic displays, linked to a geographic "master" quadrant, the tracking scale factor may or may not be one.

When UNLINK is selected after the cursors were linked, then only one cursor will remain, whether there were two, four, or five originally. This function will always be active.

Note: To move the link master cursor from one screen (or quadrant) to another or to move a single unlinked cursor from one screen to the other, this function must be selected twice in succession, once to change the screen (or quadrant) and once to toggle the function back to its previous state.

1-1.2 Cursor Coordinate Display Function.

Selection:

Graphic Tablet (only): AZRAN R/LAT, LON/AZRAN H

Active

Environment: Always active

Options and

Parameters: (Three way toggle)
Azimuth, Range from the RDA location (first toggle and default) or
Latitude, Longitude (second toggle)
Azimuth, Range from the 'HOME' (third toggle)

Defaults: None

Operation: This is a graphic tablet three-way toggle function. Activation of this function is independent of which screen button on the puck is used for selection. When the function is active (Azimuth Range (RDA), Lat, Lon or Azimuth Range (Home) are selected), the cursor geographic coordinates and height are displayed in the product-independent status area on the right side of the graphic screen. The information will only be displayed on a screen which has a cursor displayed with a geographic product (or background map) displayed. If the coordinate information is not displayed, the cursor

coordinate line title will remain on the master screen (if the function is active) simply to indicate the selection state of the function. If the cursors are linked between screens, the information will be displayed only on the master cursor screen. This screen which contains this display will, in fact, be the master cursor screen.

The selection state of this function is always displayed on the master cursor screen. It will indicate Azimuth/Range/Height from the RDA position if AZRAN RDA is selected, Lat/Long/Height if LAT, LON is selected, or Azimuth/Range from Home (plus height) if AZRAN (H) is selected. (The HOME location is definable by the operator via the CURSOR HOME DEFINE function on the graphics tablet as well as from the alphanumeric Adaptation Data menu.) When the CURSOR AUTO/MANUAL mode selection is in MANUAL, the appropriate cursor coordinate information will be displayed ONLY FOR THE LAST SELECTED CURSOR COORDINATE, that is, when the button is DEPRESSED on the puck. If the CURSOR HOME or PRESET CENTER function is selected in that case, it will also alter the selected cursor coordinate. When the CURSOR AUTO/MANUAL mode selection is in AUTO then the cursor coordinate information will be updated automatically, once per second, whenever the cursor is moving without depressing the puck button.

The cursor height will also be displayed, in feet above sea level, for the geographic cursor position, when the geographic product displayed has an associated radar elevation angle. The height will be determined by the elevation angle and the distance, assuming a spherical earth.

When an RCM intermediate graphic product is displayed on the master cursor screen, the LFM grid box identifier is displayed in the cursor readout, in addition to Latitude/Longitude or Azimuth/Range. This is true whether the RCM intermediate graphic product is being edited or just displayed. When the LFM grid box identifier is displayed, the AZRAN R/LAT, LON/AZRAN H function will still be a three-way toggle and all three states will include the LFM box ID readouts.

Notes: The last selected cursor coordinate is selected when the puck button is depressed in the cursor tracking area and is remembered as a single, screen- independent, parameter. This is because the only time there are cursors on both screens is when they are geographically linked to the same position. This also provides for remembering a single coordinate to allow recentering and magnification of different products on the two screens at exactly the same center coordinate.

If the cursor is moved from a screen with a geographic product to a screen without a geographic product (by selecting the LINK/UNLINK function for that screen), the cursor coordinate line will move to that screen (with no actual coordinate information). However, the last selected geographic position(s) from the previous screen will be retained for the AZRAN SELECT, CROSS SECTION SELECT, and RECENTER MAG functions on either screen.

Refer to paragraph [8-2.7 Cursor Height and Coordinates](#). for the format of the cursor coordinate readout.

In summary, there are four rules for this function:

RULE 1: The cursor readout update mode is dependent upon the selected state of the CURSOR AUTO/MANUAL function (see paragraph [1-1.4 Cursor Coordinate Display Auto/Manual Function](#)).

- RULE 2: The last selected cursor position is where the cursor position was selected for a screen with a GEOGRAPHIC product or map overlay displayed (via image area graphic tablet button depression, CURSOR HOME, or PRESET CENTER).
- RULE 3: The selection state of this cursor coordinate display function is always indicated on the master cursor screen as part of the cursor coordinate display if the cursors are linked, or, on the screen with the cursor displayed on it if they are not linked.
- RULE 4: The actual cursor coordinate data is only displayed if a GEOGRAPHIC product or map is displayed on the same screen.

1-1.3 Cursor Home Function.

Selection:

Graphic Tablet (only): CURSOR HOME

Active

Environment: Always active

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: This function will operate exactly as if the operator were to place the puck over the image area on the tablet at the Home position and depress the selected screen puck button. This position is defined in adaptation data as a particular geographic position in latitude, longitude coordinates.

This will cause the last selected cursor coordinate to be set to the Home position for subsequent RECENTER, MAGNIFY, AZRAN SELECT and CROSS SECTION SELECT function selections (see [Section 6-3: Recenter, Magnify Functions](#), paragraph 4-1.2.3 [Match Parameter Function.](#), and paragraph 4-1.2.4 [AZRAN Select Function.](#)).

Notes: If there is a geographic display on the selected screen but the Home position is outside the bounds of the present displayed area, the last selected cursor coordinate position will still be set to "Home" and the cursor will appear at the edge of the display.

If there is no geographic display on the selected screen when this function is selected, then the cursor will disappear from the screen. In this case, the last selected cursor coordinate (geographic) will still be set at the Home geographic position for subsequent RECENTER, MAGNIFY, AZRAN SELECT and CROSS SECTION SELECT function selections on either screen.

1-1.4 Cursor Coordinate Display Auto/Manual Function.

Selection:

Graphic Tablet (only): CURSOR AUTO/MANUAL

Active

Environment: Always active

Options and Parameters:	Auto or Manual (two way toggle)
Defaults:	Auto (when the applications software is reloaded or restarted)
Operation:	<p>When the cursor coordinate display is in AUTO, the cursor coordinates in the cursor coordinate display will automatically update, at a rate of once per second, to the current cursor display position. This occurs without depressing the puck button. When in this mode, and the puck button is depressed to define the last selected cursor position, the information is displayed on the graphic tablet feedback line (until replaced by another feedback message selection) but not retained on the cursor coordinate display line.</p> <p>When the cursor coordinate display is in MANUAL, the cursor coordinates in the cursor coordinate display are updated only when the puck button is depressed. This constantly displays the LAST SELECTED CURSOR POSITION in the cursor coordinates display. This is particularly useful for a number of reasons. First, a readout of a selected position can be obtained without carefully having to hold the puck still as in the AUTO cursor mode. Second, the last selected cursor position is always displayed so that the operator can tell where a RECENTER MAGNIFY function will recenter the product. Third, the last selected cursor position is always displayed so that, if AZRAN SELECT, CROSS SECTION SELECT, or CURSOR HOME DEFINE is selected, the operator can determine what geographic coordinate will be assigned for those functions, without always having to redefine it immediately before selection to tell what coordinate will be assigned.</p>
Notes:	<p>The color of the cursor coordinates display indicates whether it is in AUTO or MANUAL cursor mode. When it is in AUTO cursor mode, the display will be cyan blue. When it is in Manual cursor mode, the display will be white.</p>

Section 1-2: Graphic Tablet Layout

The graphic tablet is divided into two main areas: the image tracking area and the function selection area. The image tracking area is divided into two subareas: the product display area and the product annotation/status area to the right side of the image tracking area. The function selection area is further divided into ten subareas described in paragraph [1-2.2 Function Selection Areas of Graphic Tablet](#).

1-2.1 Image Tracking Area.

The image tracking area in the central/left portion of the graphic tablet is used solely to position the cursor(s) on the screen(s). It is subdivided into the following two areas.

1-2.1.1 Product Display Area.

This tablet area provides the ability to position the cursor at any of the 512 x 512 pixels of resolution in the product display area of the screen. When cursors are linked, puck positioning within this tablet area will provide for geographic cursor linking and tracking for all the selected product display areas. Puck button depression within this area will result in cursor coordinate display update unless RCM editing is in progress in which case selections from graphic screen menus are made in this area. If a product is displayed with an attribute table at the top of the screen, puck button depression on the attribute table will result in cursor coordinate selection at the azimuth and range of the storm identified in the table.

1-2.1.2 Product Annotation/Status Area.

This tablet area provides the ability to position the cursor at any of the 512 x 128 pixels in the product annotation and status area on the right side of the displays. When the puck is positioned in this area, a total of one or two cursors (four or five cursors in quarter screen mode) will appear on the screens depending on whether they are unlinked or linked. When linked, they will always track at identical screen positions since this area is provided only for text or other non-product graphics with no geographic meaning.

Operationally, there are two functions which require puck button depression in this area. Product Filtering and color level blinking require cursor positioning over the color bar displayed in this area, and the adaptation data product color selection screens also use this area for selection by cursor.

1-2.2 Function Selection Areas of Graphic Tablet.

The graphic tablet has ten function selection areas, designated by various colored blocks, around the periphery of the image tracking area. Each block combines boxes with related functionality.

1-2.2.1 User Function Selection Area (Top Right).

Thirty of the total of 60 User Functions ([Chapter 11 User Function Operations](#)) are selectable from the graphic tablet. (All 60 are selectable via the alphanumeric terminal.)

1-2.2.2 Graphic Display Functions (Center Right).

This area contains the main display functions of the PUP as described in [Chapter 6 Use of Graphic Tablet and Displays](#) Graphic Display Functions. These include time lapse control, graphic auto display, quarter/full screen control, recenter/magnification control, color control, cursor control, and hard copy control. Additionally, Acknowledge Alert, described in Section 8, is in this area.

1-2.2.3 Overlay Area (Lower Center Right).

Individual product overlays may be selected for display over products and other overlay controls are available via the functions in this area. Any combination of overlays may be selected simultaneously.

1-2.2.4 Cancel/Help (Lower Center Far Right).

This single function is separated from all the others so that it stands out and is easy to find. Selection

of this function (see [Chapter 3 Help](#)) will always return the graphic tablet to normal operational mode (for the selected screen) and display a graphic help screen based on the mode at time of selection.

1-2.2.5 Background Map Area (Lower Right).

Individual background maps may be selected for display, either by themselves or with products. They may be individually deleted if the MAP OVERLAY DELETE function in the graphic tablet overlay area is selected prior to selecting the map. Other map control functions are included in this area (see [Chapter 6 Use of Graphic Tablet and Displays](#)). Maps may be added in any combination with other maps or overlays.

1-2.2.6 Product Select Area (Bottom Center).

Individual product types may be selected for display or requested from this area (see [Chapter 4 Request and Control Of Products](#)). For most products, whenever a product name is selected here, an attempt will be made to display the latest received product regardless of default parameter settings for that product type. If the attempt is unsuccessful, i.e., no product with those parameters is in the data base, the default parameters and product name are displayed without the product. These parameter settings are changeable via the product parameter area (described below). If the selected product type is a base reflectivity, base velocity, base spectrum width, or storm relative mean radial velocity map, an automatic attempt will be made to display the most recent lowest elevation, .54 nmi resolution, product in the database since the PUP software was loaded. If the automatic attempt determines the latest received product is at least twelve minutes later than the previous .54 nmi resolution, lowest elevation of the product, then the latest received product for the selected product type is displayed. Additional functions contained here will display products from the product received queue, delete them from the queue (Acknowledge Product), transfer them from one screen to the other, turn them off and on, display the previous or next version of a given product, as well as the instantaneous status of the NEXRAD unit. The latter is not a product obtained from an RPG; it is generated by the PUP whenever selected.

Note that many graphic product display and request functions, including parameter selections, are provided via the alphanumeric terminal as well.

1-2.2.7 Product Parameter Select Area (Bottom and Center Left).

After selecting a product in the Product Select Area, its parameters may be changed, via selections here, so that a different version of that product type may be identified either to display it from the PUP data base or to request it from the RPG. The product transmission parameters - Low Priority, Request Maps, and Repeat Count - are also included here for selection before a request is forwarded to an RPG. Also, the SEND RPG REQUEST function will send the request for the specific product identified to the specified RPG.

1-2.2.8 Editing Commands (Top Left).

Functions to control product annotation, alert area editing, radar coded message editing, and background map editing are contained here. Note that entry into an editing mode will lock out many other graphic tablet functions, at least for the selected screen. Editing is described in [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#).

1-2.2.9 Keyboard Area (Top Center).

An alphanumeric keyboard is provided here for use in product parameter selection and editing modes on the graphic tablet. When alphanumeric text is to be selected for these purposes, it must be selected here. Product parameter selection is provided on the alphanumeric terminal only when the product request is initiated at that terminal. Product parameters entered here must be followed by selection of return (RET) before they will be honored. The Shift keys here are shift locks.

1-2.2.10 Special Graphic Symbols Area (Top Center Right).

Sixty-four special graphic symbols are provided here. (Thirty-two boxes work with the Shift keys in the keyboard area immediately to the left.) The actual definition of the shapes of these symbols is described via adaptation data. In addition to special background map symbols, there are symbols for product annotation. A hard copy of symbols may be obtained by displaying test pattern number 9 and producing a hard copy.

Section 1-3: Graphic Tablet Operational Modes

Three basic modes of operation exist on the tablet: (1) Normal, (2) Edit, and (3) Product Parameter Select. With the exception of editing background maps (which lock out most functions for the other screen), these modes are screen independent, i.e., separate for each screen.

1-3.1 Normal Mode.

In normal mode, most non-edit functions on the tablet are active. If there is no product displayed on the screen, or if the product is non-geographic, then functions which do not make sense, like RECENTER, MAGNIFY and PRESET CENTER are not functional. In normal mode, overlays may only be added if a geographic product is currently displayed, but background maps may be displayed on a blank screen. Feedback will always be provided on the "Feedback" status lines (fourth and fifth lines up from the bottom in the graphic status area, lower right) when functions are unavailable.

When CANCEL HELP is selected while in normal mode, the graphic Help screen for normal mode is displayed.

[Table 1 - 1: Graphic Tablet Function Activation](#) lists the graphic tablet functions which may be active for the same screen in normal mode. Sometimes functions may be inactive based on the current display state rather than the mode.

1-3.2 Edit Mode.

Edit mode for a screen is active after one of the following four functions has been selected on that screen:

- a. EDIT ANNOTATIONS
- b. EDIT MAP (Background Map)
- c. EDIT ALERT AREAS
- d. EDIT RCM (PART A or C).

and prior to exiting the mode via CANCEL EDIT, EXIT EDIT & SAVE (or similar functions on the graphic screen RCM edit menus in the case of RCM), or CANCEL HELP. For Background Map editing, all functions for the other screen, except ACKNOWLEDGE ALERT, will be disabled during the editing session. For EDIT ANNOTATIONS and EDIT ALERT AREAS, all functions for the other screen operate normally except EDIT ANNOTATIONS, EDIT ALERT AREAS, and Auto Display and EDIT RCM, which are disabled.

For the screen selected for editing, refer to [Table 1 - 1: Graphic Tablet Function Activation](#) which indicates which graphic tablet functions are active for each type of editing.

See [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#) for a description of editing RCM, product annotations, background maps, and alert areas, as well as ancillary functions.

Table 1 - 1: Graphic Tablet Function Activation

MAY BE ACTIVE ON ONE SCREEN DURING:

GRAPHIC TABLET FUNCTION	NORMAL MODE	EDIT ALERT AREAS	EDIT MAPS	EDIT RCM	EDIT ANNOTATIONS	PARAMETER SELECT MODE
1. All User Functions	X	X	X	X	X	X
2. Cancel User Function	X	X	X	X	X	X
3. Speed Down, Speed Up	X					
4. Frame Back, Frame Forward	X					
5. Time Lapse Resume/Halt	X					
6. Time Lapse 1, 2, or 3	X					X
7. unused	X					
8. Auto Display Resume/ Halt	X					X
9. Quadrant 1, 2, 3, or 4	X					X
10. Recenter Magnify 1x, 2x, 4x, or 8x	X	X	X	X	X	
11. Full Screen	X					X
12. Clear Screen	X					
13. Filter	X			X	X	
14. Combine Down, Combine Up	X			X	X	
15. Restore Displayed Product	X			X	X	
16. Gray/Color Scale	X			X		
17. Preset Center	X	X	X	X	X	
18. Cursor Link/Unlink	X	X	X	X	X	
19. Acknowledge Alert	X	X	X	X	X	X
20. Hard Copy	X	X	X	X	X	X
21. Cursor Home	X	X	X	X	X	
21a. Cursor Auto/Manual	X	X	X	X	X	X
22. Azran R/Lat,Lon/Azran H	X	X	X	X	X	X
23. All Overlays	X					
24. Alert Area 1, Alert Area 2	X	X	X			X
25. Overlays Off/On	X	X	X		X	
26. Overlays Erase	X	X	X			
27. Map Overlay Delete	X	X	X	X	X	

Table 1 - 1: Graphic Tablet Function Activation

GRAPHIC TABLET FUNCTION	NORMAL MODE	EDIT ALERT AREAS	EDIT MAPS	EDIT RCM	EDIT ANNOTATIONS	PARAMETER SELECT MODE
28. Stop Blink	X	X	X	X	X	X
29. Page Attribute	X					
30. Maps Off/On	X	X		X	X	
31. Maps Erase	X	X		X	X	
32. Maps Foreground/Back-ground	X	X		X	X	
33. Cancel Help	X	X	X	X	X	X
34. All Maps	X	X	X	X	X	
35. Acknowledge Product	X	X	X	X	X	
36. Display Queued Product	X					X
37. Product Off/On	X	X	X	X	X	X
38. Product Back Product Forward	X					X
39. Transfer Screen Product	X			X	X	
40. Clear Queue	X	X	X	X	X	X
41. Redisplay Last Product	X					X
42. NEXRAD Unit Status	X					
43. All Products	X					X
44. All Product Parameters	X					X
45. Azran Select	X					X
46. Cross Section Select	X					X
47. Send RPG Request						X
48. Display Product	X					
49. Annotate Product	X					
50. Edit Alert Areas	X					
51. Edit Map	X					
52. High Detail	X					
53. Add Rectangle, Delete Rectangle	X					
54. Delete Alert Box, Add Alert Box		X				
55. Start Erase, End Erase			X		X	

Table 1 - 1: Graphic Tablet Function Activation

GRAPHIC TABLET FUNCTION	NORMAL MODE	EDIT ALERT AREAS	EDIT MAPS	EDIT RCM	EDIT ANNOTATIONS	PARAMETER SELECT MODE
56. Start Line, End Line			X		X	
57. Cancel Edit, Exit Edit and Save		X	X		X	
58. All Keyboard Characters			X		X	
59. Backspace, Space			X		X	
60. Return			X		X	
61. Upper Shift, Lower Shift			X		X	
62. All Special Symbols			X		X	
63. Edit RCM Part A, Part C	X	X				
64. Blink Color Level	X	X	X	X	X	X
65. Cursor Home Define	X	X			X	

1-3.3 Product Parameter Select Mode.

When this mode is active for one screen, the tablet buttons for the other screen can be in any mode, with the exception of EDIT MAP, as already noted.

This mode does not become active until the MATCH PARAMETERS function, the DEFAULT PARAMETERS function, or when an applicable parameter for a displayed product (or one selected for display but not available) is selected from the left side of the graphic tablet. The mode remains in effect through subsequent parameter selections until DISPLAY PRODUCT or SEND RPG REQUEST is selected. Any other valid selection for that screen will cancel parameter select mode and ignore any parameter changes just made.

When parameter select mode is first entered, the graphic product display area will display the "Pick-A-Product" menu (see paragraph [4-1.4 Pick-A-Product Display Menu.](#)) listing available products of that type in the PUP data base. The current set of applicable product parameter values are listed on the right side of the screen (or within the selected quadrant in quarter screen mode). When an applicable parameter value is selected from the lower left area of the tablet, the selected value will replace the previous value next to the parameter name on the graphic screen. When a parameter name (excluding AZRAN SELECT and CROSS SECTION SELECT) is selected from the area immediately to the left of the cursor tracking area, the parameter name is displayed in the preview area below the list of current parameters. The actual value associated with the parameter name must then be entered using the tablet keyboard area at the top of the graphic tablet, one character (or numeric) at a time, followed by return (RET). If return is not selected following parameter entry from the keyboard area, the entry will be ignored and the original value left unchanged.

When characters are entered from the keyboard area, each one is displayed in the preview area of the graphic screen. The Shift keys work as shift lock keys with lower shift always in effect after a parameter name is selected. Following selection of Return, the entered value is checked for validity and, if valid, replaces the value for that particular parameter on the list of current parameters. If invalid, an appropriate feedback message is displayed and the keyboard area reactivated for reselection of the

parameter; however, if an invalid elevation is entered, the nearest valid elevation will be used.

At any time, the user may select display product or send RPG requests. Upon selection, the system will attempt to display the product specified by the displayed parameter values, i.e., it will change the default parameters for the selected product to match the displayed parameter values. See paragraph [4-1.2.2 Default Parameters Function.](#), Default Parameters Function, for more details. If, upon selection of DISPLAY PRODUCT, the product with the new set of parameters is not in the data base, then the parameter list is redisplayed, along with the "Pick-A-Product" menu, but the screen IS NOT IN PARAMETER SELECT MODE. Note that the WER Elevation Angle to plane assignments selected on the graphic screen do not change the defaults which are determined on the WER Plane Assignment Edit screen on the alphanumeric terminal.

Instead, SEND RPG REQUEST will be active as indicated by a feedback message. At that time, the DISPLAY PRODUCT function will operate as it does when not in parameter select mode, i.e., it will attempt to display the latest received product from an RPG.

Note that in parameter select mode, selection of another display function such as PRODUCT FORWARD, Time Lapse, Auto Display, a new product name, etc., or a "Pick-A-Product" selection will cancel parameter select mode and return the screen to normal mode. Selection of a screen manipulation function such as MAGNIFY, FILTER, etc., in parameter select mode will be ignored since no product is being displayed to manipulate.

Applicable parameters may be selected in any order or repeated within one parameter select mode. Only the last selection will be honored for any multiply selected parameter.

Section 1-4: Graphic Display Function Queuing and Cancelling

Graphic display functions, i.e., those which cause something to be displayed on the screen, other than a status or feedback message, including clear screen, are queued separately for each screen or quadrant when selected from the graphic tablet, or the alphanumeric terminal, or when sent from an executing User Function, or when any combination of the above occurs simultaneously. This means that functions which are selected in sequence, more quickly than they can be executed, will not be forgotten, but will be executed in the order in which they were received. Up to thirty functions per screen may be queued at one time, including quadrant selections. Newly received functions beyond thirty will be ignored.

Functions are not queued indiscriminately, but rather, careful attention is paid to queuing only those functions which make sense. Functions stored on the queue which do not make sense to keep if a new function is received are removed from the queue (cancelled).

[Table 1 - 2: Graphic Display Functions Cancelled from the Queue if a New Display Request* is Made for that Screen \(Quadrant\)](#) describes which functions are cancelled from the queue when a new display product request (as defined in the table) is received for the same screen (quadrant in quarter screen mode). [Table 1 - 3: Graphic Display Functions Cancelled from the Queue if a Duplicate Function Request is Made for the Same Screen](#) shows which functions are cancelled if a duplicate function request for the same screen (quadrant) is received.

Table 1 - 2: Graphic Display Functions Cancelled from the Queue if a New Display Request* is Made for that Screen (Quadrant)

- * New Product Display (by name) (lower center of tablet)
- * REDISPLAY LAST PRODUCT
- * Test Pattern (selectable from alphanumeric terminal only)
- * Screen Colors Help Screen
- * NEXRAD UNIT STATUS (graphic display)
- * CLEAR SCREEN
- * TIME LAPSE (display)
- * DISPLAY PRODUCT
- * TRANSFER SCREEN PRODUCT
- * DISPLAY NEXT QUEUED PRODUCT
- COMBINE UP
- COMBINE DOWN
- FILTER
- BLINK COLOR LEVEL
- MAGNIFY
- PRESET CENTER
- Overlay Display (as an overlay, by name)
- OVERLAYS OFF/ON
- OVERLAYS ERASE
- MAP OVERLAY DELETE
- Map (by name)
- MAPS OFF/ON
- MAPS ERASE
- MAPS FOREGD/BACKGD
- PRODUCT OFF/ON
- GRAY/COLOR SCALE
- PAGE ATTRIBUTE
- PRODUCT FORWARD
- PRODUCT BACK
- RESTORE DISPLAYED PRODUCT
- STOP BLINK
- AUTO RES/HALT
- MATCH PARAMETERS
- DEFAULT PARAMETERS
- Any product parameter selection

* DISPLAY REQUESTS

Table 1 - 3: Graphic Display Functions Cancelled from the Queue if a Duplicate Function Request is Made for the Same Screen

FILTER
 MAGNIFY
 PRESET CENTER
 OVERLAYS OFF/ON
 OVERLAYS ERASE
 MAPS OFF/ON
 MAPS ERASE
 MAPS FOREGD/BACKGD
 PRODUCT OFF/ON
 GRAY/COLOR SCALE
 PAGE ATTRIBUTE
 RESTORE DISPLAYED PRODUCT
 STOP BLINK
 HARD COPY
 CURSOR LINK/UNLINK
 AZRAN R/LAT,LON/AZRAN H

Section 1-5: Function Selection Indicator and Feedback.

1-5.1 Graphic Tablet Function Selection Indicator.

Every graphic tablet function selection will be indicated by the Function Selection Indicator which is the sixth and seventh lines up from the bottom right-hand side of the particular graphic screen for which the selection was made. These messages are displayed in green and echo the name listed in the tablet function box. This is merely an acknowledgement that the function was selected, not that it has been or necessarily can be performed.

Normally, acknowledgement is instantaneous, but if the graphic subsystem is particularly busy at the time the graphic tablet puck button is depressed, it may take up to a couple of seconds for an acknowledgement to appear. This is unusual, but possible if a product is currently being displayed or a time lapse is running at high speed. It is not necessary to redepress a tablet puck button unless there is a bad electrical contact. The request will be acknowledged as soon as possible.

1-5.2 Graphic Tablet Selection Feedback.

Immediately below the Graphic Tablet Function Selection Indicator lines are two lines displayed in yellow for the purpose of displaying graphic tablet selection feedback messages. These normally apply to each screen individually and are usually instructional messages in reference to the graphic tablet function currently selected. Sometimes the feedback line will simply clear if the selected function can be executed normally and no additional information can be provided. Sometimes the feedback line is simply a reflection of the graphic tablet selection line as an indication of successful execution. Sometimes amplifying information is provided about the function currently executing. If the function selected is a double or triple toggle function, the new toggle state is always indicated on the feedback line. However, there is no feedback for AZAN R/LAT, LON/AZRAH. If the function is currently disabled for some reason or invalid under the circumstances, one of several messages will appear on the feedback line to indicate this.

If a user function is being defined, the feedback lines on all three screens will list the individual commands as they are incorporated into the user function or rejected as invalid.

If a user function is executing, the feedback lines on all three screens will reflect the functions listed on the user function at the time they are requested. The screen to which a particular function applies feedback will apply also to function execution. If functions back up on the graphic screen queues, then it is also possible that feedback may be provided for a particular graphic screen function at the time it is removed from the queue and executed, though this may considerably follow the time it was requested. Feedback messages number in the hundreds and are too numerous to list here.

The Graphic Tablet Selection Feedback lines provide feedback for graphic tablet selections only. They are not intended to indicate the state of the graphic screen which may also be changed by automatic means or selection from the alphanumeric terminal. In the latter case, feedback is provided on the alphanumeric screen where the command is entered.

Chapter 2

Use of Alphanumeric Terminal

The alphanumeric terminal provides the operator with two major functions: the capability to give commands to the PUP through the use of the keyboard, and the capability to view alphanumeric displays on the CRT.

PUP commands are entered either by typing in a valid command string or by depressing one of the 16 function keys. These commands provide the operator with a wide variety of actions, including capabilities to manipulate the display on the alphanumeric terminal screen, control PUP operation, display graphic and alphanumeric products, control request of products from the RPG, define time lapse loops, perform archive functions, define and execute user functions, change adaptation data, and request help text for display.

The screen on the alphanumeric terminal is used to display text which has been requested by the operator or automatically generated based on conditions detected internally by the PUP. The operator requests are for the display of menus (to aid in using the command language), help text (for information on how to use the PUP), status lists, and alphanumeric products. Several sections of the screen are dedicated to notifying the operator of internally detected conditions: feedback for operator commands, active weather alerts generated by the associated RPG, alphanumeric product queue status, NEXRAD system status, and status of RPG communications.

Section 2-1: Screen Format

The alphanumeric screen is divided into ten fields, each used for the display of particular types of information. Refer to [Figure 2-1. Alphanumeric Screen Format](#) for the screen locations of the fields.

Fields on the screen can be subdivided into "unprotected" and "protected" sections. When the cursor is located in an unprotected portion of a field, the depression of an alphanumeric character key (see paragraph [2-2.1 Alphanumeric and Special Character Keys](#).) will cause the corresponding character to appear on the screen at the location of the cursor. In this way, the operator can enter commands and data for execution by the PUP. On the other hand, when the cursor is located in a protected area, depression of an alphanumeric character key will not change the character currently displayed at the cursor location. The PUP utilizes protection of screen areas in order to prevent the operator from accidentally destroying displays and instructions. When operator input is expected, the cursor will be automatically placed in the first applicable unprotected area on the screen.

2-1.1 Title Line.

The first line of the screen is the title line, a protected area which contains a general description of the current contents of the alphanumeric display area. If the information in the alphanumeric display area is part of a multipage display, the right-hand side of the title line will contain the page number of the page currently displayed, as well as the total number of pages available. When the Archive Menu is displayed, the currently selected archive device number is displayed on this line.

LINE	
1	TITLE LINE
2	COMMAND LINE
3	FEEDBACK LINE
4	Not currently used
5	ALPHANUMERIC DISPLAY AREA
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	UNACKNOWLEDGED ALERT LINE
23	ACKNOWLEDGED ALERT LINE
24	SYSTEM STATUS LINE
25	CRT STATUS LINE (Normally Blank)

Figure 2-1. Alphanumeric Screen Format

2-1.2 Command Line.

The command line begins with the protected heading "COMMAND" on the second line of the screen. The remaining portion of the line is used for display of command strings as they are entered on the keyboard by the operator. Whenever command entry is allowable, the command line will automatically be made unprotected, and the PUP will place the cursor within it. When the PUP does not expect commands to be entered, the command line will be completely protected. Refer to paragraph [2-3.2 Command Execution/Command Line Usage](#) for more information regarding usage of the command line.

2-1.3 Feedback Line.

The feedback line is a protected field, located on the third line of the screen, which begins with the fixed heading "FEEDBACK:". The remaining portion of the line is updated automatically with messages to the operator in response to commands recently entered at the alphanumeric terminal (or from an executing User Function). Refer to paragraph [Section 2-6: Feedback Line](#) for more information about the feedback line.

2-1.4 Alphanumeric Display Area.

The alphanumeric display area is the 17 line section of the screen used for the display of menus, help text, alphanumeric products, and status displays, and for the display of edit screens, which are special screen formats used by the operator to enter data which cannot be conveniently entered in commands.

For all displays, except edit screens, the alphanumeric display area is completely protected. Edit screens, however, contain a mixture of protected and unprotected subfields. Each unprotected subfield corresponds to a particular data item required by the PUP to complete the execution of the currently selected command. Refer to paragraph [Section 2-4: Edit Screen Usage](#) for more information regarding the usage of edit screens. Refer also to paragraph [Section 2-3: Command Language/Menus](#), paragraph [Section 2-7: Alphanumeric Product Display Format](#), and paragraph [Section 2-8: Other Alphanumeric Displays](#) for more information regarding usage of the alphanumeric display area.

2-1.5 Unacknowledged Alert Line.

The unacknowledged alert line, located near the bottom of the screen, is a protected field containing a list of all active weather alerts which have not yet been acknowledged by the operator. Refer to paragraph [Section 8-3: Alerts](#) for a detailed description of the unacknowledged alert line and the alert notification procedure.

2-1.6 Acknowledged Alert Line

The acknowledged alert line, located on the bottom left of the screen, is a protected field containing a selected list of active weather alerts that have been acknowledged by the operator. Refer to paragraph [Section 8-3: Alerts](#) for more information regarding the acknowledged alert line of the screen.

2-1.7 Alphanumeric Product Queue Indicator.

The alphanumeric product queue indicator, located on the bottom right of the screen, is a protected field which always contains the current status of the alphanumeric product queue. The alphanumeric product queue is an internal list of recently received RPG generated alphanumeric products. The PUP offers a variety of commands for displaying products from the queue, or otherwise manipulating the queue, and this field is updated in response to these commands. Refer to paragraph [Section 4-12: Received Product Queue, Alphanumeric](#) for detailed information regarding the usage of the alphanumeric product queue and paragraph [8-2.11 Alphanumeric Product Queue Indicator](#) for the format of the alphanumeric product queue indicator field.

2-1.8 System Status Line

The system status line, located on the bottom left of the alphanumeric screen, contains the most recent system status message as well as the day and time it was generated. System status messages are brief descriptions of internally detected system events and conditions. Refer to paragraph [8-2.9 System Status Lines](#) for more information regarding the system status line.

2-1.9 RPG Product Request Status Line

The RPG product request status line, located on the bottom right of the screen, contains the most recently generated RPG product request status message. These messages notify the operator of the current status of communications to the RPGs, including notification of all specific products as they are received. Refer to paragraph [8-2.10 RPG Product Request Status Lines](#) for more information regarding the RPG product request status line.

2-1.10 CRT Status Line

The CRT status line is a protected area of the alphanumeric screen which contains a brief summary of the current status of the alphanumeric terminal. Normally, the CRT status line is not displayed, but when the terminal detects certain conditions, as described below in the discussion of the error indicator subfield, it is displayed. The following discussion provides information which will be helpful to the operator in the use of the PUP alphanumeric terminal. However, for more detailed information regarding the contents of the CRT status line, refer to Concurrent Computer Corporation Users Guide for the video display unit you are using.

The content of this line includes the current position of the cursor, beginning in column 33, in the format Lyy Cxxx, where yy is the line number and xxx is the column number of the cursor position.

The alphanumeric terminal automatically detects certain CRT conditions and notifies the operator by displaying a message in the error indicator subfield, located in columns 53 to 57, and by ringing the CRT bell. Normal operation commences upon depression of the SETUP/STATUS key by the operator. The most common error indicator messages are:

KBD LOCK	Indicates that the keyboard is locked (i.e., unusable). The PUP locks the keyboard to prevent the operator from altering the contents of the screen while operator input is being processed. Please do not attempt entries when this message appears.
FLD PROT	Indicates that the operator attempted to type while the cursor was in a protected area of the screen.
ON ATTR	Same as FLD PROT.
INPUT ER	Indicates that the operator attempted an invalid insertion operation within an unprotected field (refer to paragraph 2-2.7 Editing Keys for information regarding insertion capabilities).

Section 2-2: Keyboard Usage

The alphanumeric keyboard has a number of different types of keys used to enter and/or manipulate alphanumeric data at the PUP. These key types are described in the following sections. Refer to [Figure 2-2. Keyboard Schematic](#) for the keyboard locations of each key type.

Certain keys, as noted below, have an "auto repeat" feature. When such a character is depressed for at least one second, the terminal generates a stream of that character at a rate of 15 characters per second until the key is released.

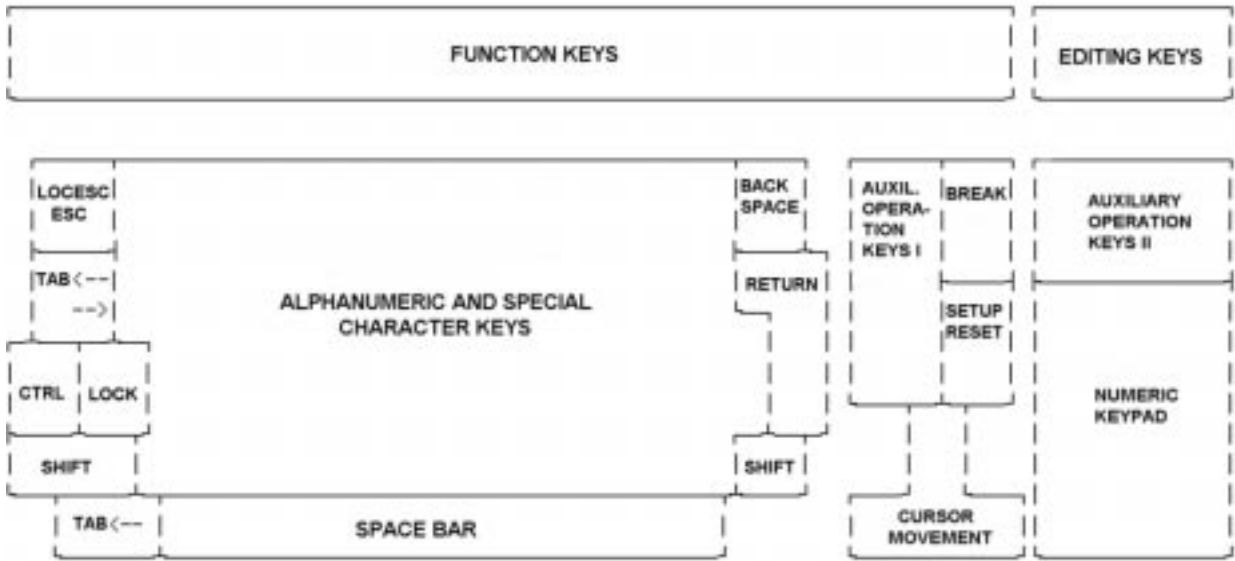


Figure 2-2. Keyboard Schematic

2-2.1 Alphanumeric and Special Character Keys.

The alphanumeric and special character keys include those keys labeled as such in Figure 2.2-1 (see [APPENDIX C](#) also), as well as the space bar and the back slash (\) key. These keys, which have the auto repeat feature, are white on the keyboard.

When the cursor is positioned within an unprotected field, depression of an alphanumeric or special character key will cause the corresponding character to replace any character currently at that location. The cursor will then be automatically repositioned at the next unprotected character on the screen, tabbing to the next subfield if necessary. On the keyboard, the numeric and special character keys each contain two symbols. The lower symbol is the character displayed by simply depressing the key. The upper symbol is the character displayed by depressing the key in conjunction with either one of the two SHIFT keys. Normally, lowercase alphabetic characters are displayed by simply depressing the desired keys, and the corresponding uppercase alphabetic characters are displayed by depressing the desired keys in conjunction with one of the SHIFT keys. To facilitate the typing of a string of uppercase characters, use the CAP LOCK key, which is described in paragraph [2-2.9 Auxiliary Operation Keys.](#) To alter this procedure so that uppercase alphabets are always displayed regardless of the SHIFT keys or the CAP LOCK key, refer to the discussion of the SET UP/STATUS key in paragraph [2-2.9 Auxiliary Operation Keys.](#) Normally, when entering commands and using edit screens, the SHIFT keys can be ignored. They are useful when entering text messages and for selection of function key 21, which is a special Help key.

Note that while the alphanumeric and special keys operate in a manner very similar to the regular typewriter, there is an important exception. The space bar actually produces a blank character which replaces whatever is currently at the cursor location. Therefore, the cursor control keys (paragraph [2-2.4 Cursor Control](#)) must be used to nondestructively skip over screen data.

2-2.2 Return Key.

The RETURN key causes the PUP to process the command string or edit screen currently displayed on the alphanumeric screen. Prior to depressing the RETURN key, the operator can use the alphanumeric and special character keys, as well as the editing keys (paragraph [2-2.7 Editing Keys](#)), the numeric keypad ([2-2.8 Numeric Keypad.](#)), and certain auxiliary operations keys (paragraph [2-2.9 Auxiliary Operation Keys.](#)) to enter/alter characters in the unprotected areas of the screen in order to format the command or data.

Upon completion of such enter/alter operations, depression of RETURN causes the PUP to interpret the data on the screen. Refer to [Section 2-3: Command Language/Menus](#) and [Section 2-4: Edit Screen Usage](#) for specific information about the RETURN key as it applies to commands and edit screens. The operator must briefly wait, after depression of the RETURN key, for the PUP to place the cursor in the proper unprotected field before again typing in entries. Normally, the KBD LOCK field, on the bottom right, appears during this time.

2-2.3 Function Keys.

The alphanumeric function keys are the row of 16 keys at the top of the keyboard. Depression of one of these keys causes the execution of a predetermined alphanumeric action corresponding to the particular key selected. These keys, therefore, provide an efficient method of performing certain operations with a single keystroke. For a more detailed discussion of the usage of function keys, and the specific functions performed by each key, refer to [Section 2-5: Function Keys](#). Note that depressing the SHIFT key along with a function key will result in the same selection as an unshifted function key with the exception of the HELP function key (5). When shifted, this will result in a separate HELP - PROD NAMES AND IDs HELP screen from any menu or display.

2-2.4 Cursor Control

Certain keys facilitate the movement of the cursor without intervention by PUP software, and without altering the contents of the alphanumeric screen. These cursor control keys include those keys

identified in [Figure 2-2. Keyboard Schematic](#) as Cursor Movement (see [APPENDIX C](#) also), TAB, and BACK SPACE. The Cursor Movement portion of the keyboard consists of the HOME key, and four keys labeled with arrows, hereinafter referred to as Cursor Up, Cursor Down, Cursor Left, and Cursor Right. All cursor control keys except for HOME have the auto repeat feature.

The HOME key moves the cursor to the left most position of the first unprotected area of the screen. The Cursor Up key moves the cursor up one line. If the cursor is at line 1, it is moved to the same column in line 24. The Cursor Down key moves the cursor down one line. If it is positioned on line 24, it is moved to the same column of line 1. The Cursor Left key moves the cursor one column to the left. If the cursor is in column 1, it is moved to column 80 of the previous line. If the cursor is in column 1 of line 1, it does not move at all. The Cursor Right key moves the cursor one column to the right. If the cursor is in the last position of an unprotected area, it will be moved to the first position of the next unprotected area. If the cursor is in column 80, it will be moved to column 1 of the next line. If the cursor is in column 80 of line 24, it will be moved to column 1 of line 1.

The TAB key can be operated unshifted or in conjunction with the SHIFT key. When the TAB key is depressed unshifted, the cursor moves to the first position of the next unprotected area of the screen. If there are no unprotected areas between the current cursor location and the end of the screen, the cursor is moved to the first position of the first unprotected area on the screen. When the TAB key is depressed in conjunction with the SHIFT key, the cursor moves to the first position of the previous unprotected field. If the cursor is currently located in the first position of the first unprotected field, it is moved to column 1 of line 1. If the cursor is currently in column 1 of line 1, shifted TAB depression has no effect.

The BACK SPACE key has the same effect as the Cursor Left key.

2-2.5 Break Key.

Depression of the BREAK key causes the screen to be cleared and then redisplayed by the PUP. This operation can be useful in at least two situations. First, if the operator makes extensive changes to the contents of the screen, and then decides to start over, the BREAK key can be depressed to restore the screen to its original state. Second, the contents of the screen display may occasionally get jumbled because of transmission problems. The correct screen can then be restored by depressing the BREAK key.

2-2.6 Control Key.

The CTRL key, located on the left side of the keyboard, is always used in conjunction with one of the alphanumeric keys to perform miscellaneous functions which do not require processing by PUP software. Often, these control codes duplicate a function provided by a specific key, such as BACK SPACE. In such cases, it may be more convenient for a touch typist to use the control code rather than the dedicated key. All the control codes discussed in this section have the auto repeat feature. The following alphanumeric keys can be used in conjunction with CTRL:

- a. G Rings the alphanumeric bell
- b. H Same as BACK SPACE
- c. I Same as unshifted TAB
- d. J Same as Cursor Down
- e. L Same as Cursor Down
- f. M Moves cursor to column 1 of the current line.

2-2.7 Editing Keys

The editing keys are the four keys grouped together at the upper right portion of the keyboard and labeled as such in [Figure 2-2. Keyboard Schematic](#). These keys can be useful for entering and modifying alphanumeric and special characters in unprotected areas of the screen. The operations performed by these keys are handled completely by the alphanumeric terminal, so that their usage is not detected and not controlled by PUP software.

Although the editing keys can be useful for modifying any unprotected area of the screen, they are most useful for editing the Radar Coded Message product and generating the PUP Text Message product. They can also be used to edit the command line prior to selection of Return. Refer to paragraph [12-1.2.3.1 Editing RCM](#)., for more information regarding the usage of specific editing keys. Additionally, the Concurrent Computer Corporation Model APT10 Video Display Unit User Guide contains much greater detail for those users who wish to make fullest use of these keys.

2-2.8 Numeric Keypad.

The numeric keypad is located in the lower right portion of the keyboard and consists of the taupe ENTER key and a full set of white numeric keys, including a minus sign, a comma, and a decimal point.

This keypad is provided to facilitate numeric data entry for people who are proficient at operating adding machines. The SHIFT key has no effect on the operation of the numeric keypad. The number keys on this keypad operate the same as the unshifted number keys at the top of the alphanumeric and special character keys portion of the keyboard. The decimal point key operates the same as the unshifted period. The comma operates the same as the unshifted comma, and the minus sign operates the same as the unshifted hyphen. The ENTER key operates identically to an unshifted TAB. All keys on the numeric keypad have the auto repeat feature.

2-2.9 Auxiliary Operation Keys.

The auxiliary operation keys are those keys labeled Auxiliary Operation Keys I, Auxiliary Operation Keys II, SHIFT, CAP LOCK, LOCAL ESCAPE/ESCAPE, and SET UP/STATUS in [Figure 2-2. Keyboard Schematic](#). Auxiliary Operation Keys I consist of the SEND, SEND MSG, PRINT, PAGE/NEW LINE, GRAPH/NORM, and BK GND REV/NORM keys. Auxiliary Operation Keys II consist of the TAB, CLEAR/DELETE, AUX PORT, and SCROLL keys. These keys perform a variety of terminal control functions, as follows:

SEND: Operates the same as the RETURN key.

SEND MSG: Has no effect on PUP operation.

PRINT: This key is not used with the current PUP hardware configuration. Depression of PRINT may cause the keyboard to lock up, necessitating the use of the recovery procedure described in [Section 2-9: Error Recovery Procedure](#).

PAGE/NEW LINE: Unshifted operation of this key causes the cursor to move to column 1 of the next line. The unshifted PAGE/NEW LINE key has the auto repeat feature. When used in conjunction with SHIFT, PAGE/NEW LINE toggles the screen display between the two pages, i.e., screens, stored in the terminal. This feature can be used to save the current alphanumeric display for convenient viewing later. The procedure to accomplish this display save operation is as follows: When the screen contains a display needed for later viewing, use the PAGE/NEW LINE key to toggle the screen to the currently undisplayed page of terminal memory. Depress BREAK to initialize the new page to the same format as the last display. Continue normal operation of the terminal and the saved screen can be viewed at any time by using the PAGE/NEW LINE key to toggle the screen pages. Note, that this operation is performed without interaction with PUP software so the recalled screen will not be recognized by the software. Therefore, to avoid alphanumeric errors, do not attempt any other operations

on the recalled screen. Restore the correct screen either by depressing the BREAK key or by paging to it using PAGE/NEW LINE.

GRAPH/NORM: Used in conjunction with SHIFT, this key puts the terminal into graphics mode, in which alphanumeric and special character keys produce terminal graphics instead of their normal symbols. These graphics characters are never valid input to the PUP, and their use will result in a software detected alphanumeric terminal error. The PUP will perform automatic error recovery, which means that all user input data currently on the screen will be lost and the current edit screen will be cancelled.

Unshifted depression of GRAPH/NORM will return the terminal to normal character mode.

BK GND REV/NORM: Used in conjunction with SHIFT, this key causes the entire alphanumeric screen to be displayed in inverse video, in which the background is light green and the characters are dark. Unshifted depression of BK GND REV/NORM returns the terminal to normal video, in which the characters are light green displayed on a dark background.

TAB: Operates the same as the TAB on the left side of the keyboard.

CLEAR/DELETE: Used in conjunction with the SHIFT key, CLEAR/DELETE clears the entire alphanumeric screen. To resume a normal operation, depress the BREAK key. Unshifted CLEAR/DELETE has no effect at all.

AUX PORT: This key is not used with the current PUP hardware configuration. Depression of AUX PORT, either shifted or unshifted, may cause the keyboard to lock up, necessitating the use of the recovery procedure described in [Section 2-9: Error Recovery Procedure](#).

SCROLL: Causes the terminal to toggle between normal operation and a paused state in which the PUP cannot send data to the terminal. In general, this key should not be used, because depressing it can interfere with the normal operation of the PUP. However, if SCROLL is inadvertently depressed, in which case the terminal will eventually appear to be unusable, it must be depressed again to resume operation.

SHIFT: There are two SHIFT keys, one on either side of the alphanumeric and special character key portion of the keyboard. These keys do nothing by themselves, but are used in conjunction with other keys to increase the number of actions which a single key can perform. The two SHIFT keys operate identically. The effect of using SHIFT in conjunction with any given key is described in the sections pertaining to the particular key.

CAP LOCK: Causes the terminal to toggle between normal mode and a capitalization mode in which all lowercase alphabetic characters entered from the keyboard will be displayed as uppercase. The CAP LOCK key is the only key on the keyboard which has two stable positions: in and out. When the key is in, automatic capitalization is in effect. When CAP LOCK is out, lowercase characters are displayed as such.

LOCAL ESCAPE/ESCAPE: This key is not used for normal operation of the PUP.

SET UP/STATUS: Unshifted depression of this key corrects most error conditions which resulted in messages on the CRT status line (line 25). Shifted depression of the SET UP/STATUS key causes the terminal to go into configuration mode, in which a full screen menu of terminal options (which can be edited) is displayed for modification. The options on this menu control the interaction between the PUP operator, the terminal, and the PUP software. These settings should normally not be altered, because certain alterations can render the terminal unusable until they are reset. However, several options may be of interest to the operator. To

change a setting, first enter configuration mode by depressing SET UP/STATUS in conjunction with SHIFT. Then, use the cursor control keys to move the cursor to the unprotected area controlling the particular option of interest; the unprotected area always precedes the option label. Next, change the current value to the desired setting. For yes/no options, the entry must be either capital Y or capital N. When all changes have been made, depress the SET UP/STATUS key again to cause the new configuration to take effect and the screen to be cleared again. If the configuration menu disappears, depress BREAK to restore the screen; if BREAK does not work, the PUP will reset the screen automatically. If the configuration menu does not disappear when SET UP/STATUS is selected again, one of the settings must have been altered incorrectly. If this occurs, correct it and try again. The options which may be changed by the operator are as follows:

UPPER CASE: Y causes all lowercase alphabetic characters entered from the keyboard to be displayed as uppercase; N causes lowercase to be displayed as such.

INVERSE VIDEO: Y causes dark characters to be displayed on a light screen; N is the normal setting, in which light characters are displayed on a dark screen.

BLINK CURSOR: Y causes the cursor to blink every second; N disables blinking.

BLOCK CURSOR: Y causes the cursor to appear as the inverse of the character which is at the cursor location; N causes the cursor to appear as an underscore character.

KEY CLICK: Y causes the terminal bell to sound briefly upon depression of any key on the keyboard; N disables this feedback.

SCREEN SAVE: Y causes the screen to blank out after 15 minutes of inactivity. Any keyboard operation or message from the PUP will restore the entire screen. To restore the screen without generating characters, depress the SET UP/STATUS key. N causes characters to remain displayed on the screen regardless of activity.

Section 2-3: Command Language/Menus

The PUP command language and menus provide a user friendly method for performing most of the functions available at the PUP operational position. Independent of the menus, the expert operator can use the command language, with its command abbreviations, in a very quick and efficient manner. The novice operator (or the expert who simply forgets a command) can use the command language in tandem with the menus both to learn the PUP commands and to achieve all needed functionality.

2-3.1 Command Syntax.

A command consists of a series of subcommands and/or parameters separated by commas and optionally terminated by a semicolon. For example, all of the following are valid PUP command variations:

```
DISPLAY TEST PATTERN, 3, L
C,REI;
TIME LAPSE, DISPLAY, 3,, 2.5
A, R, S
```

The PUP command language consists of many such commands. The specific format of each one can be learned through the use of the menus (see paragraph [2-3.3 Menu Usage](#) for information on menu usage) and this manual, which describes each particular command within the chapter to which it applies (refer to Cross Reference of Command/Functions to Section Number).

The subcommands/parameters (individual fields within a command) must be separated by commas so that the PUP can distinguish between each part of the whole command. Blanks are ignored anywhere within a command. For example, the following two strings have exactly the same meaning to the PUP:

```
USERFUNCTION,EXAMINE,31
U SER FUN CT I O N, E XAMINE, 3 1
```

A subcommand is a word or words (or portion of a word, if desired) which, when placed in the correct location within a command, cause the command to perform a particular action. The wording of a subcommand broadly describes the action which it causes. In the example above, the phrases "USER FUNCTION" and "EXAMINE" are subcommands. This particular command causes the display of the contents of user function 31. When specifying a particular subcommand, it is not necessary to type in the entire phrase. Every subcommand has an abbreviated form (normally the first letter or two of the phrase as indicated by parentheses on the menu) which has the same meaning to the PUP as the full subcommand. The operator can omit as few or as many of the trailing letters of a subcommand as desired, as long as the minimum abbreviation is present. For example, the minimum abbreviation for the ADAPTATION DATA command is AD as indicated on the [Main Menu](#) (Appendix A). Therefore, the following subcommands are equivalent:

```
ADAPTATION DATA
ADAPTATION DAT
ADAPTATION DA
.
.
.
ADAP
ADA
AD
```

However, merely specifying A would not mean ADAPTATION DATA as specified on the [Main Menu](#) (Appendix A). Instead, the PUP would interpret it as the ARCHIVE subcommand because A is the minimum abbreviation for the ARCHIVE subcommand which is also a valid first subcommand. Note that there may be two or more subcommands having the same minimum abbreviation, such as ARCHIVE and ALPHANUMERIC PRODUCT, which are both abbreviated as A. However, this apparent ambiguity does not cause a problem because such subcommands are not valid in the same location within a full command. For example, ARCHIVE is used as the first subcommand in a command:

A, READ, STATUS FILE

but ALPHANUMERIC PRODUCT is valid only after the subcommand DISPLAY, e.g.:

DISPLAY, A, FTM

Commands can also consist of parameters. A parameter is a variable string of alphanumeric and special characters which specify a value for use by the PUP when executing a command. For example, in the command

USER FUNCTION, EXAMINE, 31

the numeric character string 31 is a parameter specifying the user function identifier number. Parameters are used for specifying items such as date, time, product name, display rate, etc., as required by particular commands.

Many of the subcommands and parameters in the PUP command language have default values. The operator can take advantage of these defaults to minimize keystrokes. For example, the following two commands are equivalent:

C,REI,G
C;

To obtain the default for a single subcommand/parameter, simply do not type any characters between the two commas where the subcommand/parameter would normally appear. For example, in the command

ARCHIVE, APPEND, PRODUCTS,,, 10:26, 05/06/86

the start time and start date are allowed to default, while the end time and end date are specified. The semicolon can be used to cause all remaining subcommand/parameters to default. In the command

ARCHIVE, APPEND, PRODUCTS;

the start time, start date, end time, and end date are all allowed to default, in this case, causing the entire data base of weather products to be archived onto optical disk. Note, that in order to cause the final position subcommand/parameter in a command to default, the semicolon must be specified because it is not valid to end a command with a comma. Subcommands/parameters which can be defaulted are specified by lowercase letters on the menus (see paragraph [2-3.3 Menu Usage](#)). The specific default for a given parameter is described in this manual within the description of the command to which it applies.

2-3.2 Command Execution/Command Line Usage.

To cause an alphanumeric command to be executed on the PUP, enter the command string when the

cursor is positioned on the command line and depress the RETURN key. Depression of the RETURN key effectively tells the PUP to read the contents of the command line and perform the indicated action. However, if the PUP detects an error in the command string, it will not perform the desired action; instead, it will flag the error by displaying a feedback message and placing the cursor over the first subcommand or parameter which triggered the error.

Note, that it is the contents of the command that are interpreted when RETURN is depressed; it does not matter how the command string got there. There are many ways to enter a complete command onto the command line. The most straightforward method is to use the alphanumeric and special character keys discussed in [Section 2-2: Keyboard Usage](#). However, these characters can be modified/corrected using the other key types, such as cursor control keys, editing keys, etc., as was discussed in [Section 2-2: Keyboard Usage](#). In addition, when the PUP is in novice mode (see paragraph [2-3.4 Expert Mode/Novice Mode](#)), it will anticipate the initial subcommand(s) most likely to be selected by the operator and it will put that string onto the command line for the operator to complete. If this happens, the operator is not necessarily required to use the pre-furnished command string. Instead, the command line may be cleared and typed over with any command.

Certain alphanumeric function keys can be used to aid in entering a command. CANCEL ALPHANUMERIC SELECTION, function key 3 (see paragraph [2-5.3 Cancel Alphanumeric Selection](#).) clears the command line. RESTORE COMMAND, function key 4 (see paragraph [2-5.4 Restore Command](#).) causes the PUP to restore the entire character string for the most recently executed full PUP command onto the command line. In this way, it is easy to re-execute the same command or one which requires only minor parameter changes by editing.

Certain PUP functions use many parameters. For such functions it would be extremely cumbersome to require that all of the parameters be specified in a command string. Instead, the operator uses a short command to invoke an "edit screen," which is a special format in the alphanumeric display area of the screen. An edit screen offers the operator the opportunity to modify default parameters in unprotected subfields. Whenever an edit screen is active, the command line will be inactive and protected. Depression of the RETURN key will not cause execution of the command line in this case but will usually result in the selection of the parameters displayed on the edit screen. See [Section 2-4: Edit Screen Usage](#) for more information on the use of edit screens.

2-3.3 Menu Usage.

The menus are always available for use by the operator while working at the alphanumeric terminal. They serve as both an aid for remembering commands and a tool for learning new commands. A menu is a text display appearing in the alphanumeric display area and describing the specific formats for a set of commands. There are a total of 14 menus covering virtually every alphanumeric command (refer to [APPENDIX A](#) for all menu text).

The menus are organized in a hierarchical structure, with the Main Menu at the top of the hierarchy. The Main Menu lists 11 possible subcommands which can begin a PUP command. For each of these 11 subcommands there is another menu describing the format of the completion of every command which has that initial subcommand. There is an additional adaptation data menu containing those adaptation data editing commands which require the use of a password, and a menu called the System Option menu (see paragraph [2-3.5 System Option Menu](#)), which describes certain system control commands which also require the use of a password.

The menus use a standard format from which the operator can obtain the following information: the sequence of subcommands/parameters which make up a full command, the character string which comprises each full subcommand, the minimum abbreviation of each subcommand, the default subcommands, an indication of whether each parameter has a default, and other minor descriptive information regarding certain commands, e.g., notes.

The menus list the available sequences of subcommands/parameters through their hierarchical structure. Rather than repeat subcommands, an indentation of text on menus is used. The Main Menu, at the highest level of the hierarchy, indicates those subcommands which must begin a command. The other, lower level, menus indicate subsequent sequencing information. They show subcommands/parameters of the same level indented to the same depth on the display. For example, in the following portion of the Control menu:

```
(REI)NITIALIZE,(G)RAPHICS
(RES)TART PUP
(S)HUTDOWN,(N)ORMAL
                ,(I)MMEDIATE
```

it can be seen, that after entering

```
CONTROL,SHUTDOWN,
```

on the command line, the operator has a choice of NORMAL or IMMEDIATE because these are grouped together at the same depth of indentation after the subcommand which precedes them in a command.

The menus show minimum abbreviations and full subcommands through the placement of parentheses and commas. The minimum abbreviation of a particular subcommand is always enclosed in parentheses. The full subcommand includes the minimum abbreviation as well as the rest of the subcommand word or phrase.

The menus can be used to determine which subcommands are defaults and which parameters have defaults. There is no default Main Menu subcommand, i.e., a comma cannot begin a command line. On other menus, the default subcommand is always the subcommand listed first at each particular command level. For example, referring to the Control menu given in Appendix A, the default after entering CONTROL is REINITIALIZE, GRAPHICS making the following commands equivalent:

```
C;
CONTROL;
CONTROL,REINITIALIZE,GRAPHICS
C,REI,G
```

A parameter is shown on the menus by enclosing a short description of the parameter in <> signs. If a default value is available for a particular parameter, the enclosed description appears in lowercase alphabetic characters. If there is no default, the description is in uppercase. Due to space limitations, it is impossible to describe on the menus how the default values are selected. This information can be found in this manual within the individual command descriptions.

Often the menus will clarify the function or result of a command through the use of supplemental comments. This commenting is accomplished in two ways. Some comments appear within the menu text after the command to which they apply. These inline comments are enclosed in brackets [] to show that they are not part of the command. More lengthy comments appear in the menus as footnotes. Footnotes are referenced by the placement of one or more asterisk after the subcommand/parameter to which they apply. Asterisks are never part of a command; they only reference a particular footnote.

The Main Menu can be displayed at any time by depressing alphanumeric function key 1, RETURN TO MAIN MENU. The Main Menu can also be displayed by blanking out the command line by backspacing, or any other available means such as function key 3, and depressing RETURN. To display another menu while the command line is active, enter a partial command (i.e., a command string with

insufficient subcommands/parameters to be a full command), then depress RETURN. For example, the Control menu will be displayed if the partial command C,REI is entered followed by depression of RETURN or if C is entered followed by depression of RETURN. C is the subcommand which must precede any selection listed on the Control menu.

2-3.4 Expert Mode/Novice Mode.

Expert mode is characterized by entering complete commands and function key 3 (see text below). Novice mode is characterized by entering partial commands followed by RETURN. These two modes of operation increase the ease of use for operators of varying degrees of familiarity with the command language. Also, in novice mode, after execution of a complete command the PUP usually duplicates, partially, the last entered command and places the partial command onto the command line for completion by the operator. If, during entry of a command, there was a menu displayed, then, after selection, the command line will contain the partial command which prefixes selections from that menu. For example, after entering the complete command

ARCHIVE,READ,S

the PUP will anticipate that additional archive commands may be necessary and place an

A,

onto the command line. Although this automatic command line initialization provides useful help for the beginning user, and often for the advanced user, it is sometimes a hindrance to the advanced user who is familiar with the command language and would like to quickly go from one type of command to another. In novice mode, it would be necessary to backspace over the PUP supplied partial command, then type the new command over it. In expert mode, the PUP leaves the command line blank after execution of a command.

Expert mode is activated by depressing alphanumeric function key F3, CANCEL ALPHANUMERIC SELECTION. Novice mode is the default mode of operation. It is set during start up of the PUP, and it becomes reactivated every time a menu is displayed. Return to novice mode is usually unavoidable, e.g., function keys 1 and 2 will do it, so select function key 3 again to return to expert mode.

2-3.5 System Option Menu.

The System Option menu is a password protected menu which may be selected from, but not listed on, the Main Menu. The operator must specify the correct password to display this menu and also to execute any of the commands on it. Thus, the password protects against unauthorized use of commands which may affect the basic functioning of the PUP.

To display the System Option menu, enter only the password onto a blank command line, then depress RETURN. The menu will be displayed, and the password will be replaced by five asterisks on the command line. To subsequently execute a system option command, simply type in the remaining portion of the command string; it is not necessary to retype the password because the PUP remembers, in this case, that it has already been entered. However, be careful not to leave the terminal in this "password activated" state. To deactivate the password, either display a different menu via function key 1 or 2 or execute another valid command not on this menu.

Section 2-4: Edit Screen Usage

Certain PUP functions use many parameters. For such functions, the parameters are specified using an "edit screen," which is accessed via an alphanumeric command. An edit screen is a special format which appears in the alphanumeric display area. They all have the words "EDIT SCREEN" as part of their title. Edit screens contain both protected areas, with text describing the parameters to be specified, and unprotected areas, which are initialized with parameter defaults to be modified by the operator.

The general procedure for use of edit screens is to first execute the command which causes the display of the edit screen. The PUP will then protect the command line, thus temporarily preventing command line usage. The edit screen will be displayed with relevant portions unprotected. The operator then modifies these unprotected areas using the alphanumeric and special character keys, cursor control keys including TAB, and editing keys described in [Section 2-2: Keyboard Usage](#). All unprotected areas will be initialized with default parameters. Therefore, if the defaults are acceptable, it is not necessary to change anything. Finally, either the RETURN key or an appropriate function key (as described in the following sections) is depressed to exit the edit screen and perform the indicated function. If the edit screen remains on the screen, it will be deactivated and completely protected. The command line will become unprotected and will again be available for entering commands. Always wait for the cursor to appear on the command line as a "prompt" before typing in commands.

2-4.1 Product Editing and Generation.

Certain edit screens, the RCM edit screens (alphanumeric), and the PUP Text Message edit screen, facilitate the editing of Radar Coded Message alphanumeric products and the generation of the PUP Text Message alphanumeric product (refer to [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#) for RCM editing). On the PUP Text Message edit screen, the entire alphanumeric display area is unprotected so that up to 17 lines of text can be edited/generated together. Function keys F6 and F7 can be used for paging backward and forward to edit different pages of multipage products. The RETURN key moves the cursor to the first column of the next line. Function key F3 cancels editing without saving any of the edited/generated data. Function keys F1 and F2 save the new product and make them available for use by other PUP functions. See paragraph [12-1.1 The Pre-Edited RCM Product](#), for a more detailed description of alphanumeric product editing/generation.

2-4.2 Product Parameter Selection.

Many commands use detailed product identification and control parameters for their operation. Each of these commands has its own associated edit screen, each with a slightly different format depending on the function performed. However, these edit screens are all similar in operation. Appendix A contains sample edit screens.

The command used to invoke a product parameter edit screen always requires the specification of a product mnemonic as a command parameter. This mnemonic, identifying a category of related products, is displayed in a protected area on the left side of the edit screen under the header "PROD NAME". The product mnemonic is followed by a series of relevant parameters displayed horizontally across the screen, each parameter having its own descriptive header. The PUP will unprotect the areas containing those parameters which are relevant to the selected product mnemonic. Completely filling an unprotected field full of characters will cause the cursor to jump automatically to the next unprotected field.

To have the function indicated by the edit screen executed, modify all undesired defaults and depress RETURN. If all parameter values are valid, the action will be performed and the edit screen will be deactivated. On the other hand, the action will not be performed if there are any user errors in the specified parameters. Instead, all unprotected areas which contain errors will be highlighted, the cursor will be placed in the leftmost error field, and a feedback message describing the leftmost error will be displayed. The edit screen will remain active for correction of the parameters, followed again by

RETURN key depression. (If an invalid elevation is entered, the PUP will use the closest valid elevation instead.)

At any time while the edit screen is active, the operator can use the function keys F1 (RETURN TO MAIN MENU), F2 (RETURN TO PREVIOUS MENU), or F3 (CANCEL ALPHANUMERIC SELECTION) to deactivate the edit screen without having the indicated action executed. The following is a list of the product parameter edit screens:

(D)ISPLAY,(A)LPHANUMERIC PRODUCT,<PROD-NAME>*
 (D)ISPLAY,(G)RAPHIC PRODUCT,<PROD-NAME>*
 (D)ISPLAY,(GP)GRAPHIC AND PAIRED ALPHA,<PROD-NAME>*
 (R)OUTINE PRODUCT SET (E)DIT ROUTINE PRODUCT EDIT SCREEN
 (A)RCHIVE,(A)PPEND,(O)NE PRODUCT,<PROD-NAME>
 (enters edit screen)
 (A)RCHIVE,(R)EAD,(O)NE PRODUCT,<PROD-NAME>
 (enters edit screen)
 (AD)APTATION DATA,(R)OUTINE PRODUCT SETS,<RPS-ID>
 (E)DIT (enters edit screen at this point)

* Product parameter edit screen entered here.

2-4.3 Routine Product Set Editing.

Routine Product Set edit screens are accessed via the ROUTINE PRODUCT SET subcommand (see paragraph 4-6.1.1 [Edit Routine Product Set](#)) and the ADAPTATION DATA subcommand (see paragraph 4-6.2.1 [Edit Adaptation Data Routine Product Set Lists.](#)). After executing the command, the appropriate edit screen will be displayed. This edit screen contains a small menu section list at the top and a product parameter edit section below that, followed by eight lines containing a portion of the routine product set to be edited. When this screen is first displayed, the command line remains active and the product parameter edit section is inactive. The operator can use the command line to enter one of the commands listed in the small menu section of the edit screen. THE COMMAND LINE IS INACTIVE WHILE THE ROUTINE PRODUCT SET EDIT SCREEN IS ACTIVE. This small set of available commands is used to control routine product set editing, including activation of the product parameter edit line as described in the sections below.

To save the edited routine product set, depress function key F1 (RETURN TO MAIN MENU) at any time. If help text is not currently displayed, then depression of F2 (RETURN TO PREVIOUS MENU) will also save the list. In either case, any data currently on the product parameter edit line will not be saved.

The function keys F6 (PAGE ALPHANUMERIC BACK) and F7 (PAGE ALPHANUMERIC FORWARD) can be used at any time to display a different page of the routine product set in the eight line routine product set viewing area. Function key F3 (CANCEL ALPHANUMERIC SELECTION) clears the command line when it is active. When the edit line is active, F3 deactivates the edit line, reactivates the command line, and cancels the modify or insert operation in progress.

2-4.3.1 Modify a Line of the Routine Product Set.

Selection:

Alphanumeric (only): (M)ODIFY,<LINE#>,<PROD-NAME>
 (activates edit line)

Active

Environment: Active only when a Routine Product Set edit screen is displayed and the routine product set is not empty of products.

Options and

Parameters: <LINE#> indicates the routine product set line number of the product parameters to be modified. This number corresponds to the line numbers displayed down the left-hand side of the eight-line parameter display area. It must be a line which already has product parameters listed.

<PROD-NAME> is the one- to three-letter mnemonic of the product to be added onto the list.

Defaults: The default <PROD-NAME> is the mnemonic of the product currently on the specified line number. If selected (by entering a semicolon after <LINE#>), the edit line will duplicate the contents of LINE#.

Operation: This command allows the subsequent modification of the product parameters currently listed on the specified line number. Execution of this command will deactivate the command line and activate the product parameter edit line. Refer to paragraph [4-6.1.1 Edit Routine Product Set](#) for a description of the product parameters. After making desired modifications to product parameter defaults, depress RETURN to cause the parameters on the edit line to replace those on the line specified in the command.

Notes: Selection of this command, or entry of the partial command M,<LINE#>, causes the display of the routine product set page containing the specified line number if it differs from the current page.

If <PROD-NAME> is allowed to default, the default parameters which appear on the edit line will be exactly those which appeared on the specified line number. If <PROD-NAME> is explicitly specified, even if it is the same mnemonic as the one on the specified line, the normal product parameter defaults will appear on the edit line (refer to [Section 5-2: Product Parameter Defaults](#) for a description of these defaults).

2-4.3.2 Insert a Line into the Routine Product Set.

Selection:

Alphanumeric (only): (I)NSERT,<LINE#>,<PROD-NAME>
(activates edit line)

Active

Environment: Active only when Routine Product Set edit screen is displayed and the routine product set is not full (less than 31 products for PUP or 50 for RPGOP).

Options and

Parameters: <LINE#> indicates the routine product set line number after which a new product is to be added. It must be either a line that already has a product or zero if the list is empty. Zero may also be entered if it is necessary to make an insertion before the first product.

<PROD-NAME> is the one- to three-letter mnemonic of the product to be inserted into the list.

Defaults: None

Operation: This is used to add products to a Routine Product Set List. This command provides for the insertion of a new line of product parameters after the specified line number. Execution of the command deactivates the command line and activates the product parameter edit line. Refer to [4-6.1.1 Edit Routine Product Set](#) for a description of the parameters. After modifying the desired parameter defaults, depress RETURN to cause the parameters on the edit line to be inserted after the specified line number. All line numbers following the new line will then be incremented by 1.

Notes: Selection of this command, or entry of the partial command I,<LINE#> causes the display of the routine product set page containing the specified line number if it differs from the current page.

The edit line default values will be the normal product parameter defaults for the given product mnemonic (see [Section 5-2: Product Parameter Defaults](#)).

Use (I)NSERT,0,<PROD-NAMES> to begin inserting on a blank list.

2-4.3.3 Delete a Line from the Routine Product Set.

Selection:

Alphanumeric (only): (D)ELETE,<LINE#>

Active

Environment: Active only when the Routine Product Set edit screen is displayed and the routine product set is not empty of products.

Options and

Parameters: <LINE#> indicates the routine product set line number to be deleted.

Defaults: None

Operation: This is used to delete a product from a Routine Product Set List. It causes the specified line of product parameters to be deleted from the routine product set. The line does not have to be one of the eight lines currently displayed but may be on another page. After the deletion is performed, the routine product set is renumbered so that there is no gap in the numbering.

2-4.3.4 Cancel Routine Product Set Editing.

Selection:

Alphanumeric (only): (C)ANCEL ALL

Active

Environment: Active when the Routine Product Set edit screen is displayed.

Options and

Parameters: None

Defaults: None

Operation: This command deactivates the Routine Product Set edit screen and displays either the Routine Product Set menu or the Adaptation Data menu, whichever applies. The edited routine product set is not saved or sent to the RPG. The current routine prod-

uct set and the adaptation data routine product set remain unchanged.

2-4.4 Other Edit Screens.

The PUP operator has the capability to control a number of PUP functions and interactions with the RPG. These options are accessed via the commands listed on the Control menu, the System Option menu, and the Adaptation Data menu and others. Whenever possible, options which control a function are completed via a single command, but some functions are controlled by a lengthy set of options which would be inconvenient to specify in a single command. Instead, edit screens are provided which default to the previously selected set of options. These include background map version, alert processing control, background map associations, overlay associations, precedence of overlays, hard-copy colors, and other adaptation data.

To use one of these edit screens, enter the appropriate command (indicated by footnotes on the menus) and depress RETURN. The command line will then become protected and the edit screen displayed. The protected areas of these edit screens contain brief descriptive information to aid in their use. The current (default) settings of the options are displayed in the unprotected areas of the edit screen for review and possible modification. After modifying the desired fields, depress RETURN. If all input data is valid, the new settings will go into effect. If there are input errors, the unprotected areas containing the errors will be highlighted, the cursor will be placed in the leftmost error field, and a feedback message describing the leftmost error will be displayed. The settings can then be corrected, followed by depression of RETURN to effect the changes.

Whenever this type of edit screen is active (which requires depression of RETURN to save the changes), function keys F1, F2 or F3 can be depressed (without selecting RETURN) to exit the edit screen, without saving the changes and without affecting the current settings.

2-4.5 Other Subcommand Language Edit Screens.

In addition to the Routine Product Set edit screens, described in paragraph [2-4.3 Routine Product Set Editing](#), there are other subcommand language edit screens which operate in a manner very similar to the Routine Product Set edit screens. These include the "Other User List Edit Screen", "RPG List Edit Screen" and "Narrowband Line Definition Edit Screen" all accessible from the Extended Adaptation Data Menu. Their data categories are described in [Adaptation Data](#), and their formats are shown in [APPENDIX A](#), Menus.

When entering any of these edit screens, the main PUP command language is temporarily deactivated and only the subcommand language of the edit screen is active. They have the same subcommand language as the RPS List edit screens:

```
(M)ODIFY, <LINE#>
(I)NSERT, <LINE#>(insert after this line)
(D)ELETE, <LINE#>
```

and (C)ANCEL ALL described in paragraph [2-4.3.1 Modify a Line of the Routine Product Set](#), through [2-4.3.4 Cancel Routine Product Set Editing](#), with the exception that (M)ODIFY and (I)NSERT do not contain the option to specify a product, but (M)ODIFY will always default with the current contents of the line being modified and (I)NSERT will always start out with blanks. The Narrowband Line Definition Edit Screens only has the (M)ODIFY and (C)ANCEL ALL options since all the possible lines must always contain a definition. The Other User and RPG lists can be of varying sizes, up to the maximum 9 pages and 25 pages respectively. The Other User and RPG list edit screens work the same way as the RPS list edit screens with the exception that, after entry, the Other User or RPG ID numbers are sorted numerically and the entries may end up in a different place than where they were inserted. As with the RPS List edit screens, to begin inserting on a blank screen, use the (I)NSERT,0 command.

Section 2-5: Function Keys

Depression of one of the 16 function keys causes the execution of a predetermined alphanumeric action corresponding to the particular key selected. Technically, the SHIFT key can be used in conjunction with the function keys to provide a total of 32 possible function key actions. On the PUP, however, function keys F1 through F16, with the exception of F5, work the same shifted or unshifted; that is, F17 to F32 perform the same functions as F1 to F16. F5, the HELP function key when shifted to be F21, still provides HELP but always displays the Product Names and IDs Help screen, in this case, rather than the normal HELP screen.

2-5.1 Return to Main Menu.

Selection:

Alphanumeric (only): F1 (Function Key 1)

Active

Environment: Always active

Operation: This function key always displays the Main Menu, blanks out the command line, halts blinking of the status line, and sets novice mode of command line usage (see paragraph [2-3.4 Expert Mode/Novice Mode.](#)).

This function key also deactivates the current edit screen, if any. It has the following additional effects on specific edit screens:

- a. Routine Product Set edit screen: saves all completed changes.
- b. RCM edit screen: saves all changes.
- c. PUP Text Message edit screen: saves the newly created PUP Text Message.
- d. Other edit screens: simply exits without performing the indicated action.

2-5.2 Return to Previous Menu.

Selection:

Alphanumeric (only): F2

Active

Environment: Always active

Operation: The action of this function key varies depending upon the current status of the alphanumeric terminal, as follows:

- a. If help text is displayed while using an edit screen (because the user depressed F5, the HELP function key), the edit screen is redisplayed so that the user can continue editing.
- b. While editing a routine product set, all changes are saved and either the Routine Product Set menu or the Adaptation Data menu is displayed, as appropriate.
- c. While editing a Radar Coded Message or generating a PUP Text Message, the edited text is saved as a new alphanumeric product, and the Generate and Distribute Products menu is displayed.

- d. While using any other edit screen, the edit screen is exited without performing the indicated edit screen action, and the menu describing the command used to access the edit screen is displayed.
- e. If a menu is currently displayed, F2 causes the display of the menu which is directly above the current menu in the menu hierarchy. If the Main Menu is currently displayed, it will remain on the Main Menu providing the command line is clear.
- f. If none of the above conditions are met, F2 displays the menu which describes the command or partial command currently on the command line.

2-5.3 Cancel Alphanumeric Selection.

Selection:

Alphanumeric (only): F3

Active

Environment: Always active

Operation: The action of F3 depends upon the current state of the alphanumeric terminal, as follows:

- a. If the command line is active, F3 blanks the command line. This is particularly useful prior to entering a different command if the PUP placed a partial command on the line. F3 sets the command line in expert mode (see paragraph [2-3.4 Expert Mode/Novice Mode.](#)).
- b. If help text is displayed while using an edit screen (i.e., F5 was depressed while an edit screen was active), F3 restores the edit screen and allows editing to continue.
- c. If the Routine Product Set edit screen, the Narrowband Line Definition edit screen, the Other User List edit screen, or the RPG List edit screen edit line is active, F3 deactivates the edit line without performing the pending modify or insert command.
- d. If any other edit screen is active, F3 exits the edit screen without performing the indicated edit screen action. The fully protected edit screen will remain displayed.

Notes: The F3 function key always sets expert mode of command line usage. Expert mode is described in paragraph [2-3.4 Expert Mode/Novice Mode.](#)

2-5.4 Restore Command.

Selection:

Alphanumeric (only): F4

Active

Environment: Active when the command line is unprotected or when edit screen help text is displayed.

Operation: The action of function key F4 depends upon the current state of the alphanumeric terminal, as follows:

- a. If the command line is active, F4 causes the current contents of the command line to

be replaced by the most recently executed alphanumeric command in its most abbreviated form. The command string may then be re-executed by depressing RETURN, or edited and executed by depressing RETURN.

- b. If edit screen help text is displayed (i.e., F5 was depressed while edit screen was active), the F4 function key restores the edit screen so that the operator can continue editing.
- c. F4 has no effect in other cases.

2-5.5 Help.

Refer to paragraph [3-2.2 Help Function Key](#). for detailed information regarding F5 and F21, the HELP function key (without SHIFT and with SHIFT, respectively).

2-5.6 Page Alphanumeric Back.

Selection:

Alphanumeric (only): F6

Active

Environment: Active whenever there is a multipage display on the alphanumeric screen and page 1 is not the current display page.

Operation: F6 causes the current multipage alphanumeric display to be paged back one page, i.e., the page which is one less than the current page number will be displayed.

Notes: A multipage alphanumeric display always has the header "Page x of y" (where x is the current page number and y is the total number of pages in the display) displayed on the right side of the title line. If the display is already on page 1 when this is selected, it will remain on page one and a feedback message will indicate that this is an invalid function.

2-5.7 Page Alphanumeric Forward.

Selection:

Alphanumeric (only): F7

Active

Environment: Active whenever there is a multipage display on the alphanumeric screen and the last page is not currently displayed.

Operation: F7 causes the current multipage alphanumeric display to be paged forward one page, i.e., the page which is one greater than the current page number will be displayed. If the last page is currently displayed, it will remain and a feedback message will indicate that this is an invalid function.

Notes: A multipage alphanumeric display always has the page number in the title line (see paragraph [2-5.6 Page Alphanumeric Back.](#)).

2-5.8 Function Keys F8 to F16.

Function keys F8 to F16 are described in detail in the sections specified in the following list:

Function Key	Section
8 AUTO ALPHA	4-10.1 Auto Display - Alpha-numeric, Start, Halt.
9 HALT AUTO ALPHA	4-10.1 Auto Display - Alpha-numeric, Start, Halt.
10 SEND RPG REQUEST	4-5.1 Send RPG Request Function.
11 ALPHANUMERIC HARDCOPY	Section 9-1: Hard Copy
12 REDISPLAY LAST ALPHA PRODUCT	4-13.6 All Quadrants.
13 DISPLAY LATEST RECEIVED ALPHA PRODUCT	4-13.7 Redisplay Last Alpha Product.
14 DISPLAY QUEUED ALPHA PRODUCT	4-12.1 Display Queued Alpha Product.
15 ACKNOWLEDGE ALPHA PRODUCT	4-12.2 Acknowledge Alpha Product.
16 ACKNOWLEDGE ALERT	8-3.1 Alert Status Lines (Weather Alerts).

Section 2-6: Feedback Line

The PUP uses the alphanumeric feedback line to display immediate response to PUP commands originating at the alphanumeric terminal or having an effect on terminal operations.

Every time the operator enters a valid command, the PUP displays a feedback message beginning with the prefix "EXECUTED-" and followed by the entered command string in its most abbreviated form. Every time the operator depresses a function key from F8 to F16, the PUP displays a feedback message beginning with the prefix "EXECUTED - Fxx" and followed by a description of the function key action. This type of feedback provides acknowledgement that the operator action has been accepted and is being processed by the PUP. This positive feedback is especially important for functions, such as display of graphic products, whose effect is not immediately obvious at the alphanumeric terminal. Function keys F1 to F7 do not have this type of feedback because these keys always have an immediate effect on the alphanumeric terminal display.

In addition to the command acceptance feedback described above, the PUP also displays both positive and negative feedback as it is performing the requested function. This type of feedback takes precedence over command acceptance feedback, which therefore may not be displayed. Negative feedback is always given when the PUP, in processing the command, determines that the function cannot be performed as requested. Positive feedback is given when it is not immediately obvious through other means that the requested function has been successfully performed.

Section 2-7: Alphanumeric Product Display Format

Alphanumeric products are displayed in the alphanumeric display area, with a descriptive header in the title line. The alphanumeric display area contains the product data usually generated at an RPG (or PUP in the case of a PUP Text Message). The title line contains product identification information formatted by the PUP as follows:

ALPHA PRODUCT XX (NNN RRRR HH:MM MM/DD/YY) SB Page y of z where:

XX is the product identification number

NNN is the product mnemonic

RRRR is the mnemonic of the RPG which produced the product

HH:MM is the volume scan time of the product

MM/DD/YY is the volume scan date of the product

SB is the spot blanking status of the product. If the product is a spot blanked product, the characters "SB" are displayed. If the product is not a spot blanked product, then this field is blank. Note: Spot blanking provides a WSR-88D site with the capability to inhibit radar transmission when the antenna is pointing in a direction which falls within a predefined spot blanking zone. The RPG marks products generated from radar data which include spot blanked zones. The PUP will check for the spot blanking status of the product(s) and annotate the graphic product and alphanumeric product display accordingly. The PUP displays the letters "SB" following (to the right of) the volume scan time and date of the product for spot blanked products.

y is the page number of the currently displayed page

z is the number of pages in the product.

Section 2-8: Other Alphanumeric Displays

The alphanumeric terminal can be used to view a number of different displays in addition to those discussed previously in this section of the manual. These displays include status screens, which are requested via Status menu commands (see [Chapter 8 Status And Alerts](#)); help text, which is requested via Help menu commands or the HELP function keys (see [Chapter 3 Help](#)); and user function summaries, which are requested via User Function commands (see Section 11).

Section 2-9: Error Recovery Procedure

This section discusses two error recovery procedures. The first procedure is automatic error recovery performed by the PUP when it detects a problem with the alphanumeric terminal. The second procedure consists of steps performed by the operator to correct terminal problems which are either undetected or cannot be fixed by the PUP.

In communicating with the terminal, the PUP occasionally detects a terminal problem. These problems trigger an error message, such as "ALPHA CRT ERROR" or "CRT INIT ERROR", which is displayed on the system status lines of the graphic screens. The PUP will automatically attempt to correct the problem. This automatic error recovery causes all pending alphanumeric command and edit screen data to be lost, with the terminal restored to a neutral state in which the command line is blank and the Main Menu is displayed. If the PUP determines that the terminal is misconfigured, automatic recovery may require up to 30 seconds, the time it takes to reconfigure the terminal. Sometimes the PUP is unable to correct the problem with the terminal, in which case the PUP will attempt automatic recovery every five seconds until successful. For example, if the terminal is powered down, error correction is impossible until the operator manually restores power.

The alphanumeric terminal occasionally becomes temporarily inoperable due to transmission problems which go undetected by the PUP. In such cases, the first remedy is to use the BREAK key as described in paragraph 2-2.5 Break Key.. However, if the BREAK key does not solve the problem, e.g., when the keyboard becomes locked, the following recovery procedure should be attempted: Power down the terminal using the switch under the right-hand side of the display. Wait several seconds, then turn on the terminal. This off-on procedure clears many of the bad states which can affect the terminal. If the screen then displays the Main Menu, it should now operate normally. If the screen remains (mostly) cleared, try depressing the BREAK key which will again attempt to display the Main Menu. If none of this works (and all electrical connections are intact), contact maintenance personnel.

Chapter 3

Help

Help text is always available to the user on both the graphic tablet and the alphanumeric terminal. The help text provided from the graphic tablet is more general with seven screens of text provided. The alphanumeric terminal help is more extensive with approximately 50 help screens available, some with multiple pages. Section 3.1 describes how to obtain help from the graphic tablet. Section 3.2 describes how to obtain help from the alphanumeric terminal.

Section 3-1: Help From the Graphic Tablet.

Help is provided on a graphic screen by selecting the CANCEL/HELP function located on the lower right section of the graphic tablet. This action cancels product parameter select mode or any edit mode which may be active on the selected screen, provides help text for that mode, and places the tablet back in normal mode for that screen. The entire selected screen is used to display the help text. Help text is available for each of the six graphic tablet modes, which are:

- a. Normal Mode
- b. Parameter Select Mode
- c. Edit Background Maps Mode
- d. Edit Annotations Mode
- e. Edit Alert Areas Mode
- f. Edit RCM Part A
- g. Edit RCM Part C

The other graphic screen is not affected by selecting help except for the Graphic Auto Display, which is canceled before the help text is displayed. Any mode which otherwise meets its entry criteria may be entered after finishing with the help text.

Section 3-2: Help From the Alphanumeric Terminal

There are two methods of obtaining help on the alphanumeric terminal: by entering a help command on the command line or by depressing function key 5 (or 21), the HELP function keys. This key, if depressed alone, will result in a Help screen tailored to the current menu or display. If depressed simultaneously with SHIFT (making it function key 21), the HELP - PROD NAMES AND IDS help screen is always displayed. These methods are described in Sections 3.2.1 and 3.2.2 respectively.

When help is obtained on the alphanumeric screen, the appropriate help screen is displayed with a help screen title and page number. If there is more than one page for the selected category of help, depression of function key 7 will page forward and depression of function key 6 will page back. Immediate access to any individual page can be made with the page command, (P)AGE,<N> where N is the page number. If there is a partial command remaining on the command line, depress function key 3 to clear it prior to entry of the page command. When a help screen is displayed, depression of function key 2, RETURN TO PREVIOUS MENU, will return the display to the previous menu or edit screen displayed.

3-2.1 Help Commands.

Selection:

- | | |
|----------------------|---|
| Alphanumeric (only): | <ol style="list-style-type: none"> 1. (H)ELP,(M)ENU USAGE 2. (H)ELP,(C)ONTROL 3. (H)ELP,(S)TATUS 4. (H)ELP,(D)ISPLAY 5. (H)ELP,(R)OUTINE PRODUCT SET 6. (H)ELP,(G)EN AND DIST PRODUCTS 7. (H)ELP,(T)IME LAPSE 8. (H)ELP,(A)RCHIVE 9. (H)ELP,(U)SER FUNCTIONS 10. (H)ELP,(AD)APTATION DATA 11. (H)ELP,(MO)NITOR PERFORMANCE 12. (H)ELP,(H)ELP 13. (H)ELP,(F)UNCTION KEYS ALPHA 14. (H)ELP,(P)ROD NAMES AND IDS 15. (H)ELP,(PA)RAMS AND IDS OF PRODUCTS 16. (H)ELP,(AN)NOTATE PRODUCTS 17. (H)ELP,(B)ACKGROUND MAP EDIT 18. (H)ELP,(E)DIT ALERT AREAS 19. (H)ELP,(AL)ERTS 20. (H)ELP,(TR)AINING MODE 21. (H)ELP,(W)EATHER OP MODE/VCP 22. (H)ELP,(ALP)HANUMERIC DISPLAY 23. (H)ELP,(GR)APHIC TABLET 24. (H)ELP,(HA)RDCOPY COLORS PRINT 25. (H)ELP,(SC)REEN COLORS,<SCREEN> 26. (H)ELP,(TE)ST PATTERN 27. (H)ELP,(RA)MTEK HARDWARE 28. (H)ELP,(TA)PE DRIVE 29. (H)ELP,(COM)MUNICATIONS LINES 30. (H)ELP,(O)PTICAL DISK |
|----------------------|---|

Active

Environment: Always active except when an edit screen with a subcommand language is displayed.

Options and
Parameters: None

Defaults: Entering the command "(H)ELP;" will cause the Menu Usage Help Screen, which is the default, to be displayed.

Operation: Entering a command from the list above will cause the specified help screen to be displayed. Commands 1 through 12 above give help on menus and their usage. Command 13 lists the alphanumeric terminal function keys and their functions. Command 14 provides a list of all product names, mnemonics, and IDs. Command 15 provides a list of all product names, mnemonics, IDS, and the parameters defined for each product. This display is much longer than the display available with Command 13. Commands 16, 17, and 18 provide help on the editing of graphic product annotations, background maps, and alert areas. Command 19 displays help on weather alerts. Command 20 explains training mode. Command 21 provides information on the weather operational modes and volume coverage patterns. Command 22 describes the display areas of the alphanumeric screen. Command 23 gives information on the usage of the graphic tablet. Command 24 provides a printout on the color printer of 128 colors and the numerical codes for printer colors associated with each. Command 25 provides a display on the selected graphic screen (L or R) of 128 colors and the numerical codes for screen colors associated with each. Command 26 describes the test patterns available for the graphic screens. Command 27 explains useful information about the Ramtek graphic subsystem. Command 28 provides information on the tape drive. Command 29 describes the external communications lines used. Command 30 describes the use of the archive IV optical disk.

3-2.2 Help Function Key.

The HELP function key (F5) may be depressed at any time, in any mode, whenever help is needed while using the Alphanumeric terminal. When depressed simultaneously with SHIFT, the HELP function key becomes function 21. This always accesses the HELP - PRODUCT NAMES AND IDS help screen which is a two-page display listing all product names, mnemonics, and IDS for the convenience of the operator. To return to the previous display, after the HELP display, merely depress the RETURN key; however, if the command line has a page command on it, press F3 to clear the command line first.

When function key 5 is depressed (without SHIFT), the command that is currently displayed on the alphanumeric command line or the currently active edit screen determines what help screen text is displayed. There are three types of help screens that are accessible via the HELP function key: help screens on menu usage (these are the same help screens that are displayed via a help command for menus), help screens on the usage of the edit screens, and miscellaneous help screens. The following is a list of all the help screens that can be displayed by depressing the HELP function key:

- a. Menu Usage Help Screen
- b. Control Menu Help Screen
- c. Status Menu Help Screen
- d. Display Menu Help Screen
- e. RPS Menu Help Screen
- f. Generation and Distribution (including alphanumeric editing) of Products Help Screen

- g. Time Lapse Menu Help Screen
- h. Archive Menu Help Screen
- i. User Function Menu Help Screen
- j. Adaptation Data Menu Help Screen
- k. Monitor Performance Help Screen
- l. Help Menu Help Screen
- m. RCM Edit Screen Help Screen
- n. PTM Edit Screen Help Screen
- o. Send Annotations Edit Screen Help Screen
- p. Background Map Version Edit Screen Help Screen
- q. Display Alphanumeric Product Edit Screen Help Screen
- r. Display Graphic Product Edit Screen Help Screen
- s. Display Graphic and Paired Product Edit Screen Help Screen
- t. RPS Edit Screen Help Screen
- u. Time Lapse Define Edit Screen Help Screen
- v. Archive One Product Edit Screen Help Screen
- w. Read One Archived Product Edit Screen Help Screen
- x. Alert Processing Edit Screen Help Screen
- y. Background Map Associations Edit Screen Help Screen
- z. Overlay Associations Edit Screen Help Screen
- aa. Precedence of Overlays Edit Screen Help Screen
- ab. Hardcopy Color Selection Edit Screen Help Screen
- ac. Numerically Editable Data Edit Screen Help Screen
- ad. RPS Command Mode Help Screen
- ae. Adaptation Data Categories Help Screen
- af. Product Parameter List Help Screen
- ag. System Option Menu Help Screen

ah. Extended Adaptation Data Menu Help Screen.

After reviewing the help screen, the previously displayed menu or edit screen (providing the command line is not cleared) may be redisplayed by depressing the RETURN key.

Chapter 4

Request and Control Of Products

This section describes the various methods of selecting products from the PUP data base for display on the various screens, as well as the various methods of obtaining products from the associated and non-associated RPGs. Although the selection of product parameters is described in this section, the specific parameter descriptions are, for the most part, provided in [Chapter 5](#) . In addition, the control of products for distribution to PUES and Other Users, as well as manual deletion of products from the PUP data base, is discussed.

The product data base is sized to hold as much data as can be received in a six-hour period during heavy operations. (Note: The six-hour period is valid with an RPS list of up to 20 entries and communication line baud rates of up to 9600. Increases in the number of RPS entries and use of higher baud rates may significantly reduce the amount of time before products are overwritten by latest received products). Usually, with an RPS list of less than 21 entries, the data base will hold data for a period considerably longer than this. The (S)TATUS, (E)ARLIEST TIME command will obtain the actual time period whenever requested. The product data base is set to a fixed size and is also set to hold a maximum number of products. When either of these limits is reached, the data base will wrap around, i.e., the oldest product stored will be overwritten by the latest product received. This process takes place continually so that the data base is always full. There is no need for the operator to manually clear products from the data base except for the purpose of removing them from display sequences to be built, to avoid intermingling during training mode, to facilitate archiving only a desired set of products, or some similar purpose.

This chapter is divided into 16 sections as follows:

[Section 4-1: Display Graphic Products \(by Parameters\)](#)

[Section 4-2: Display Alphanumeric Products \(by Parameters\)](#)

[Section 4-3: Paired Alphanumeric Product Display](#)

[Section 4-4: Display Products From Product Lists](#)

[Section 4-5: One-time Product RPG Requests](#)

[Section 4-6: Routine Product Set, Associated RPG, Requests](#)

[Section 4-7: Receipt of Unsolicited Products](#)

[Section 4-8: Notification of all Received Products](#)

[Section 4-9: Auto Display, Graphic](#)

[Section 4-10: Auto Display, Alphanumeric \(Auto Alpha Mode\)](#)

[Section 4-11: Received Product Queue, Graphic](#)

[Section 4-12: Received Product Queue, Alphanumeric](#)

[Section 4-13: Product Display Functions, Graphic and Alphanumeric](#)

[Section 4-14: Distribution Control of Products](#)

Section 4-15: Deletion of Products in Data Base

Section 4-16: Display and One-Time Request of Clutter Filter Control Products (CFC)

Section 4-1: Display Graphic Products (by Parameters)

This section is divided into subsections as follows:

4-1.1 Display a Specific Product - Graphic.

4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet).

4-1.2.1 Elevation Up and Elevation Down Functions.

4-1.2.2 Default Parameters Function.

4-1.2.3 Match Parameter Function.

4-1.2.4 AZRAN Select Function.

4-1.2.5 Cross Section Select Function.

4-1.3 Display Product Function.

4-1.4 Pick-A-Product Display Menu.

Section 4.1.1 describes how to display a graphic product by selection from the graphic tablet or alphanumeric terminal.

Section 4.1.2 describes how to change graphic tablet product parameter selections via the graphic tablet.

Section 4.1.3 describes how to display a graphic product after the parameters have been changed, as described in Section 4.1.2.

Section 4.1.4 describes the list of available products and the ability to display them directly from the list that gets displayed along with the product parameters.

4-1.1 Display a Specific Product - Graphic.

Selection:

Graphic Tablet: Any Product Name listed in the Product area of the graphic tablet

Alphanumeric: (D)ISPLAY,(G)RAPHIC PRODUCT,<prod-name> (goes to a product parameter select edit screen)

Active

Environment: Always active, except when the selected graphic screen is in graphic edit mode (editing a background map or alert area, or annotating a product).

Options and

Parameters: Product Name
Screen (left or right)

RPG

Time

Date

Product Dependent Parameters, e.g., Data Levels, Resolution, etc. (see [Table 4 - 1:](#)

Product Parameters)

Parameters for one time request forwarding to an RPG:

Request Priority (H or L)
 Repeat count (from 1 to 9 volume scans)
 (associated RPG only)
 Request with Background Maps
 (RPG dial-up lines only)

Defaults: Screen = Left (from alphanumeric edit screen)
 RPG = Associated, Dedicated Line
 Time = Most recent stored in data base
 Date = Most recent stored in data base
 Product Dependent Parameters = (see [Table 4 - 1: Product Parameters](#))
 Request Priority = H
 Repeat Count = 1 (one request only)
 Request with Background Maps = No

Operation: Selection of graphic products for display, from either the graphic tablet or the alphanumeric terminal, serves a dual purpose. First, if selected from the graphic tablet, the PUP data base is searched for the latest received product of the selected type, since the software was loaded. If the selected product type is a base reflectivity, base velocity, base spectrum width, or storm relative mean radial velocity map, an automatic attempt will be made to display the most recent lowest elevation, .54 nmi resolution, product in the database since the software was loaded. If the automatic attempt determines the latest received product is at least twelve minutes later than the previous .54 nmi resolution, lowest elevation of the product, then the latest received product of the selected product type is displayed. It looks for the product with the parameters indicated if it is selected from the alphanumeric terminal Display Product edit screen. Second, if the product is unavailable, the operator is notified and can, with the subsequent selection of SEND RPG REQUEST on the graphic tablet or via alphanumeric function key 10, automatically forward the request as a one-time product request to an RPG (see [Section 4-5: One-time Product RPG Requests](#)). This is why the RPG one-time product request parameters - Request Priority, Repeat Count, and Request Maps - are included with the product display parameters on both the graphic tablet and the alphanumeric terminal.

If the product is selected from the graphic tablet for display and is found to not exist in the data base, the RPG one-time request transmission parameters can then be altered without reselecting the other parameters prior to transmitting the request.

The product display selection functions (listed as product names) on the graphic tablet serve somewhat of a dual purpose. Since product display from a graphic tablet selection is almost instantaneous, when one of these functions is first selected, the most recent product of that type received from any RPG will be displayed on the selected graphic screen. The product with parameter defaults, according to the description in [Section 5-2: Product Parameter Defaults](#), is available with the DEFAULT PARAMETERS function followed by the DISPLAY PRODUCT function. If this is the product that the operator wishes to view, no further action is needed. If the operator wishes to view a different version of this product, i.e., from a different time, elevation, RPG, or any other combination of different product parameters, then only those parameters which are different from the current display need be selected, followed by DISPLAY PRODUCT to display the desired product.

If the operator already has a product displayed on the graphic screen and wishes to either display or request from the RPG, a similar product with only one or two parameters changed, e.g., a different elevation angle, then the operator should select the MATCH PARAMETERS function which will match all the parameters to the displayed product and enter parameter select mode. Then, the desired parameter(s) could be modified, e.g., by selection of ELEVATION UP, followed by DISPLAY PRODUCT or SEND RPG REQUEST. This is useful because without the MATCH PARAMETERS function it is always the Default Parameters which are displayed and these may bear no resemblance to the latest received product which is the most likely to be displayed. The MATCH PARAMETERS function is also used to display a different product type with all similar parameters matching those of the product currently on the screen. (See paragraph 4-1.2.3 [Match Parameter Function](#).) In this case, if the selection of the product name on the tablet immediately follows the selection of the MATCH PARAMETERS function, which was selected while a different product type was on the graphic screen, then, instead of displaying the latest received product, the matching product will be displayed. See paragraph 4-1.2.3 [Match Parameter Function](#) for more information.

It takes no additional time in the selection process to actually display the most recently received product upon initial product selection, and this offers several advantages. First, if this is the product the operator wishes to view, then no additional selections need be made, thus providing an extremely fast and simple method of viewing these products. When default parameters are accessed, they are carefully chosen, e.g., most recently selected elevation for any product, to increase the probability that this is the product the operator wishes to see. Second, if this is not the exact product the operator wishes to see, it still may provide very useful information for the selection of product parameters, both from the pictorial image and from the indications of what all the current default parameters are set to for that product.

The REDISPLAY LAST PRODUCT function will provide the ability to redisplay the most recently displayed product on the screen after it has been cleared for any reason.

If one of these product display selection functions is requested, or if DISPLAY PRODUCT is selected immediately after picking one or more product parameters on the graphic tablet, and no product which meets the requirements is found in the PUP data base, then the "Pick-A-Product" menu will be displayed to indicate that the selected product is not available. In this case, the screen will also automatically activate the SEND RPG REQUEST function and display all the appropriate parameters which are currently selected (or defaulted) for the unavailable product. The operator has the option to request the product from the indicated RPG via the SEND RPG REQUEST function, to alter one or more parameters by entering parameter select mode before reselecting display again via the DISPLAY PRODUCT function, or, to select a product listed on the "Pick-A-Product" display menu.

If a graphic product is selected for display from the alphanumeric terminal via the Display Graphic Product Edit Screen, the procedure is slightly different than via graphic tablet selection. In this case, all parameter selection is performed on the alphanumeric edit screen, and only after all parameters are selected and the RETURN key depressed is the request for display forwarded to the graphic subsystem. When first entering the edit screen, the set of default parameters will appear for the selected product type. When a default parameter is changed via either the graphic tablet or alphanumeric terminal, it will be remembered for future selection from either source. Thus, only one set of defaults exists for any product type at any

one time.

On the alphanumeric terminal, if selection stops (RETURN depressed) after (D)ISPLAY,(G)RAPHIC PRODUCT, then a list of all the graphic product names along with their mnemonics is automatically provided on the alphanumeric display so that the proper product mnemonic may be entered to proceed to the product parameter edit screen. Once parameter editing is completed, RETURN will complete the request. If the edit screen is exited via an alphanumeric function key, e.g., RETURN TO MAIN MENU, the edited parameters will not be remembered nor will the display request be executed. HELP is the exception. All edited parameters will be retained upon return from HELP.

Information on product parameters is provided via (H)ELP,(PA)RAMS AND IDS OF PRODUCTS on the alphanumeric terminal as well as in this document (Section 5). On both the graphic tablet and alphanumeric terminal, only those parameters which apply to the product type just selected are active and can be changed. On either device it is impossible to alter a parameter which is not currently applicable to the selected product.

Notes:

The selection of ALL SWA PRODUCTS on the graphic tablet is a special function which will automatically display the four Severe Weather Analysis products, one per quadrant, of SWA Reflectivity, Velocity, Spectrum Width, and Shear. These product parameters may subsequently be altered in any way possible as if they had been displayed via four separate requests in quarter screen mode. Alternately, any of these products may be displayed normally in full screen mode. They are automatically displayed, on a cleared screen when the SWA PRODUCTS are sent from the RPG because of an alert. They are also automatically displayed when in auto display mode (graphic).

All geographic (those with which background maps may be displayed) products may be displayed in either full screen or quarter screen. If selection is made from the graphic tablet, any product display selection will go onto the last selected quadrant if the screen was left in quarter screen mode. If the screen is in quarter screen mode and a non-geographic graphic product is selected for display, it will remain in quarter screen mode and the request will not be honored. A feedback message will indicate this. If selection is made on the alphanumeric terminal, full screen/quarter screen mode and quadrant select are always included with the display request and will be set accordingly regardless of the previous state of the screen. If a quadrant is to be selected, simply enter a number, 1 through 4, following the screen (L or R) designator. The absence of a number following the L or R indicates a full screen display. Similarly to the graphic tablet selection, however, quarter screen requests of non-geographic graphic products results in feedback message - PRODUCT INVALID IN QUARTER SCREEN.

All previous display manipulations (e.g., recenter/magnify) are reset to their default states and any map or overlay changes are reset to their defaults when a product is selected for display via any of these product display functions.

Selection for display of graphical precipitation (OHP, STP and THP) product created by a pre-9.0 version of the RPG software, causes the PUP graphic screen to blink once before displaying the product.

4-1.2 Parameter Selection Functions - Graphic Tablet (Parameter Select Mode - Graphic Tablet).

Selection:

Graphic Tablet (only):

Any Single Action Parameter function:

ELEVATION UP
 ELEVATION DOWN
 LOWEST ELEVATION
 DEDICATED ASSOCIATED RPG
 DIAL-UP ASSOCIATED RPG
 RPG 1
 RPG 2
 RPG 3
 LOW PRIORITY
 REQUEST MAPS
 BLANK TIME DATE
 .13 NM
 .27 NM
 .54 NM
 1.1 NM
 2.2 NM
 8 LEVEL
 16 LEVEL
 HIGH ALT
 MID ALT
 LOW ALT
 DEFAULT PARAMETERS
 MATCH PARAMETERS
 ALL/ONE SWA
 or any Multiple Action Parameter
 function:
 RPG
 TIME
 DATE
 REPEAT COUNT
 VAD ALTITUDE
 ELEVATION ANGLE
 CENTER AZIMUTH
 CENTER RANGE
 STORM DIRECTION
 STORM SPEED
 CONTOUR INTERVAL

Active

Environment: Any given Parameter Selection function is active when there is a graphic product just selected (except Time Lapse), to which the parameter applies. For example, ELEVATION ANGLE is only active when the currently selected product type has elevation angle as an identifying parameter. The screen may either have the product displayed or SEND RPG REQUEST active with the product parameters displayed. Additionally, they may be active in parameter select mode after the first parameter selection and prior to the selection of DISPLAY PRODUCT or SEND RPG REQUEST.

Options and

Parameters: Screen (left or right)
 The previously selected product

The individual parameter selections

- Defaults:** All of the applicable parameters have a default assignment in any particular instance. The default will be used whenever it is not changed via selection of one of these functions. These defaults fall into various categories with some being fixed and others being dynamic. Section 5.2, Product Parameter Defaults, contains a more complete description of these.
- Operation:** [Chapter 5](#) contains a list of products and their applicable parameters. Parameters become automatically inactive for graphic products to which they do not apply, and some of these parameters take on a somewhat different meaning from one product to another.

In general, these parameters are used to distinguish one set of RPG product data from another. They are parameters which are sent to the RPG to define exactly the creation of a given graphic product data set for a one-time product request. They also tell the PUP what parameters to use to search its data base for a product.

Selecting these parameters accomplishes, via the graphic tablet, exactly what editing parameters on the Display Graphic Product edit screen, via the alphanumeric terminal, accomplishes. The applicable parameters (to the previously selected product type) may be changed, or just left as default values via these functions. Selection of DEFAULT PARAMETERS during selection of parameters will reset them to their original state when they were first displayed on the graphic screen.

In general, the process of selecting these parameters for a graphic product via the graphic tablet is called parameter select mode. This mode is in effect from the time of selection of the first product parameter function through each subsequent parameter selection until DISPLAY PRODUCT or SEND RPG REQUEST is selected to actually request that product with the just selected parameters. Any selection for that screen other than the sequence described above will cancel parameter select mode and ignore any parameter selections just made.

In parameter select mode, which is entered with the selection of DEFAULT PARAMETERS, MATCH PARAMETERS or direct selection of an applicable parameter function, the graphic product display area will display the "Pick-A-Product" screen if in full screen mode and the current set of applicable parameter values is displayed on the right side of the screen (or within the selected quadrant in quarter screen mode). This is true whether the screen was just displaying a product or whether the previously selected product was not found. There is a "Current Parameter" selection line displayed below the current parameter values. If the parameter selected is a Single Action type, where no additional information need be entered, then the value just selected will appear only on the line on which the particular parameter is listed. If the parameter selected is of the Multiple Action type (see list above), this means that subsequent to the parameter function selection, a numerical or alphabetic value must be entered. When such a parameter function is selected, the keyboard area at the top of the graphic tablet is activated for subsequent entry of the numerical or alphabetic value. At the same time, the "Current Parameter" line will list this parameter by name and blank the rest of the line. As the digits or letters are then selected via the keyboard area functions, they will appear on the right side of the "Current Parameter" line. Each previous entry will be moved to the left as a new character is selected. When the parameter has been entered, the RETURN function on the Graphic Tablet Keyboard area must then be selected to indicate completion and deactivation of the keyboard. At this time, the entered parameter value is checked for validity and, if

valid, replaces the value listed on the line for that particular parameter.

After all parameters to be altered for a product are sequentially selected in parameter select mode, the DISPLAY PRODUCT function will initiate the search for the specified product and update any default parameters which are determined as last selected values. Alternately, SEND RPG REQUEST will directly send the request to the RPG and update default parameters as well. Parameter select mode may be reentered at any time.

- Notes:
- Selection of another display function, e.g., PRODUCT FORWARD, TIME LAPSE, a new product, etc., during parameter select mode in full screen or quarter screen will cancel parameter select mode for that graphic screen.
 - Selection of a screen manipulation function, e.g., MAGNIFY, FILTER, etc., in parameter select mode will be ignored, since no product is displayed on the selected screen (or quadrant) for manipulation.
 - Selection of a particular quadrant or FULL SCREEN in parameter select mode will cancel parameter select mode regardless of whether full screen or a quadrant was previously selected for that screen.
 - Applicable parameters may be selected in any order and even repeated and altered within one parameter select mode. Only the last selection will be honored for any multiply selected parameter.
 - If it is necessary to exit parameter select mode prior to completion of parameter selection, DISPLAY PRODUCT should be used to save those defaults which were entered. If the product is not available, simply do not forward the request to the RPG. Parameter entry may be resumed by subsequently reselecting the product type and the remainder of the parameters.

4-1.2.1 Elevation Up and Elevation Down Functions.

Selection:

Graphic Tablet (only): ELEVATION UP and ELEVATION DOWN (two separate function boxes)

Active

Environment: Active whenever a product which has the radar elevation angle as a product parameter has been requested for the selected screen except during a time lapse display.

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: These two product parameter selection functions are used to alter the elevation angle of the product on the screen. When the PUP is connected to its associated RPG and the RDA is operational, these functions can be used to alter the elevation product selection parameter up or down to the next higher or lower real-time radar scan elevation angle, the values of which are supplied by the RPG and match those on the NEXRAD Unit status display.

The current elevation angles of the associated RDA (as supplied by the RPG) are used

to determine the next higher or lower elevation angle regardless of what RPG a currently displayed product may be from.

If the associated RDA is non-operational or the associated RPG dedicated communications line is disconnected (this is true if the RPG is non-operational), these functions will increment (decrement) the currently chosen elevation angle by 0.8 degree, per selection, between 0.5 and 10 degrees and by 2 degrees between 10 and 20 degrees.

If it is desired to change the elevation of a product on the graphic display which was displayed without altering the default parameters (e.g., "display latest" by selecting the Product name on the tablet or display from the "Queue") then the MATCH PARAMETERS function should be selected prior to the selection of one of these functions.

Special Note: These functions start with the default elevation angle, not the elevation angle of the product displayed on the screen. Also, they change the default elevation angle only if "Display Product" or "Send RPG Request" is selected following their selection.

4-1.2.2 Default Parameters Function.

Selection:

Graphic Tablet (only): DEFAULT PARAMETERS

Active

Environment: Active whenever a graphic product has been requested for the selected screen (except for a time lapse display), e.g., when a product or a product parameter list is displayed.

Options and

Parameters: Screen (left or right)

Defaults: This function will assign all applicable product parameters their currently defined default values (see [Section 5-2: Product Parameter Defaults](#)).

Operation: When a graphic product is displayed or a list of product parameters is displayed, this function will remove the product (if displayed) or replace the parameter list (if displayed) and display the currently assigned default parameters. Parameter select mode will be activated if it was not already (see paragraph [4-1.2 Parameter Selection Functions - Graphic Tablet \(Parameter Select Mode - Graphic Tablet\)](#)).

If the screen was already in parameter select mode and one or more parameters had been modified prior to the selection of this function, this will reset them to their default values as set when parameter select mode was first entered. An exception to this would be if the AZRAN SELECT function was selected during the parameter mode which immediately changes the default azimuth and range settings. With this exception the other parameter defaults are not actually changed until the SEND RPG REQUEST or DISPLAY PRODUCT functions are selected following parameter select mode.

Notes: When parameter select mode is entered, the "Pick-A-Product" menu (see paragraph [4-1.4 Pick-A-Product Display Menu](#).) is always displayed, simultaneously listing similar products available in the PUP data base on the same screen.

When a graphic product is displayed, this function is generally the most convenient to use to display the "Pick-A-Product" menu and to enter parameter select mode when

the operator has no particular parameter in mind to change.

Following the selection of this function, as any product parameter selection on the graphic tablet, the DISPLAY PRODUCT function will attempt to find and display the product with the parameters listed, and the SEND RPG REQUEST function will forward the request to the RPG with the parameters listed for a one-time product request.

4-1.2.3 Match Parameter Function.

Selection:

Graphic Tablet (only): MATCH PARAMETERS

Active

Environment: Active whenever a graphic product is currently displayed on the selected screen (except for a time lapse display).

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: When a graphic product is displayed and this function is selected, the "parameter select mode" will be entered with all the product parameters matching identically to those of the displayed product (including time and date).

This function is useful when the product on the screen was displayed without altering the default parameters (such as selecting a product name on the tablet) and a request for a similar product, either for display from the data base, or from the RPG, is to be made. MATCH PARAMETERS does not change Default Parameter Set unless DISPLAY PRODUCT or SEND RPG REQUEST is selected subsequently. Parameter modifications may be made first.

If MATCH PARAMETERS is not selected, and a product parameter function is selected, e.g., ELEVATION DOWN, then the parameters listed will be the default parameters and the ELEVATION DOWN function will operate on the default elevation angle which may not be the angle of the displayed product. If it is desired to change the angle of the displayed product, then MATCH PARAMETERS should be selected first, followed by ELEVATION DOWN. The case is similar with other parameters.

MATCH PARAMETERS can also be used to display a product of a different type than the one currently on the graphic screen with all common parameters matching. Parameters which the new product type has that the current one does not have will use defaults. For example, if a BASE REFLECTIVITY product is on the display and it is desired to display a BASE VELOCITY with the same time, date, RPG, elevation angle, number of color levels and resolution, then use of this function is the easiest way to get the matching BASE VELOCITY displayed. Perform the following sequence to display matching products of a different type: 1) When the original product is on the graphic screen (on selected quadrant) select the MATCH PARAMETERS function. 2) Without any other intervening selections for that screen, select the new product name on the tablet. In this case, the matching product will be searched for and displayed (if available) rather than the most recently received version of that product.

Notes: This function can be useful even when the product on the display was selected with default parameters and the time/date was changed. It is possible to request the same product type with the same time/date but with some other parameter changed.

4-1.2.4 AZRAN Select Function.

Selection:

Graphic Tablet (only): AZRAN SELECT
(Top of product parameter area)

Active

Environment: Always active except when the selected screen is in graphic edit mode.

Options
and

Parameters: Last selected cursor coordinates (Azimuth, Range from the RDA) on either screen, even if cursor coordinates display was in LAT, LON, or in Azimuth, Range from the cursor home position.

Defaults: None

Operation: This function will save the last (previously) selected geographic cursor coordinate as the "default" parameters for CENTER AZIMUTH and CENTER RANGE from the RDA for any product type subsequently requested which uses one or both of these default parameters. These default parameters are used as any other parameter defaults (see [Section 5-2: Product Parameter Defaults](#)), e.g., when parameter select mode is entered. They are not used when default parameters are not used, e.g., when a product name is selected on the graphic tablet (which displays the latest received product for that type).

The last selected geographic cursor coordinate is the geographic location, saved always as Azimuth,Range from the RDA, where the cursor was positioned when the puck button was last depressed, while a geographic product or background map was concurrently displayed on the same screen. This occurs regardless of the state or screen on which the "cursor coordinate display" (see paragraph 1-1.2 [Cursor Coordinate Display Function.](#)) was displayed.

Notes: To request a product from the RPG (or PUP data base), which has a product center definition (a "window" product), by using the cursor to select the center, perform the following steps:

- (1) Place the cursor at the desired geographic location (e.g., a storm center) on any geographic product and depress the puck button for that screen. It is suggested to have the cursor readout as A/R (RDA) when doing this although this is not necessary.
- (2) Select AZRAN SELECT on the graphic tablet using any puck button. Default AZIMUTH and RANGE product parameters are now changed to the selected location.
- (3) Select the desired product name on the graphic tablet. This will display the latest received product of that category or the default parameters if none are in the PUP data base.

- (4) Select DEFAULT PARAMETERS on the graphic tablet (unless they are already displayed). The azimuth and range, if applicable, just selected with the cursor will be indicated and the current date/time (indicated by blanks) will be set.
- (5) After verifying and changing, if desired, any of the parameters, select SEND RPG REQUEST to send the one-time request to the RPG or DISPLAY PRODUCT to request it from the PUP data base.

To change the azimuth and range via cursor position selection while the screen is in parameter select mode, the operator may perform step (1) with a geographic product on the other screen and step (2) using the puck button for the screen with the parameters listed. This will update the default azimuth and range parameters listed. These parameters may also be modified via the CENTER AZIMUTH and CENTER RANGE individual parameter selections and keyboard area entries.

4-1.2.5 Cross Section Select Function.

Selection:

Graphic Tablet (only): CROSS SECTION SELECT (Top of product parameter area)

Active

Environment: Always active except when the selected screen is in graphic edit mode.

Options and

Parameters: Last two selected cursor coordinates (geographic)

Defaults: Point 1 at the Radar, Point 2 is at 90 degrees, 124 nm (230 km) when the system is brought up.

Operation: This function is used in conjunction with the vertical cross section products to specify the geographic end points when requesting one or more of these products. The last two selected geographic cursor positions prior to the selection of this function are used to define the two end points of the cross section (that is the last two selected by depressing the puck button on a geographic display). This may be accomplished prior to entering parameter select mode for a cross section product or during parameter select mode for a cross section product. This defines the default cross section end points, and those will not change unless this function is reselected or unless a new cross section is defined on the alphanumeric terminal when selecting a cross section product via the DISPLAY GRAPHIC PRODUCT EDIT SCREEN. Subsequent selections of cursor positions without reselecting this function, or when used in conjunction with the AZRAN SELECT function or CURSOR HOME DEFINE function, will not change the default cross section.

This function is most useful when defining a cross section for selection of one or more cross section products from the RPG, either via a one-time request or from a Routine Product Set (RPS) list. It would be of very limited use for selecting cross section products already stored in the PUP data base for display, unless the cross section had not changed since the RPG request was made. This is due to the large number of variations of cross sections possible. The Pick-A-Product screen or some other means would be far more convenient for that purpose. When a cross section product is added to, or modified on, an RPS list, it will always assign the default cross section defined at that time to the cross section product. The cross section end points are NOT definable on the RPS list edit screen because that would require more room than is avail-

able on that display. What is displayed (but can not be edited) on that screen for cross section products is the westernmost cross section end point (or northernmost if both points are the same longitude) in azimuth/range from the RDA.

When this function is selected, there is a limits check which takes place to verify that neither cross section end point is more than 124 nm. (230 km) from the radar and that the cross section line between the two points is between .54 nm. (1 km) and 124 nm. (230 km) long. If this is not the case, an error message is reported and the previous default cross section remains unchanged.

Notes: The CURSOR HOME and PRESET CENTER functions count as a selected cursor position.

Selection of a cursor position on a non-geographic display does not count as a selected cursor position.

The current cross section (the current default setting) may be displayed, at any time, on any geographic product or map display, by selecting the CURRENT CROSS SECTION overlay. This will display as an overlay, a straight cyan blue line, connecting the two cross section end points within a 124 nm (230 km) radius circle centered at the radar. If the cross section is redefined, then the CURRENT CROSS SECTION overlay must be reselected to display the change.

Having the CURSOR AUTO/MANUAL mode in manual when selecting the two cursor positions, prior to the selection of the CROSS SECTION SELECT function, will facilitate being able to use the cursor position readout to know what the selected end points are.

A cross section product is identified in the PUP product data base by a unique set of parameters (i.e., those listed on the Pick-A-Product screen for a specific product). Only the westernmost point (or northernmost, if both points are equally west) of the cross section is used as a unique product identifying parameter for the purpose of selection out of the data base. When the product is displayed, however, both ends of the cross section are identified in the product identification information on the screen.

When a cross section product is identified on the Time Lapse Define Edit Screen or the Archive (write or read) One Product Edit screens, only the westernmost point of the cross section is identified as parameters 1 (Azimuth) and 2 (Range), and the easternmost point is ignored.

4-1.2.6 WER Elevation Angle to Plane Assignments Product Parameter Selection (Graphic and Alpha).

The Weak Echo Region (WER) product is a special case because it has time, date, RPG, center azimuth, center range, plus eight elevation angle to plane assignments as product request parameters (13 parameters total) from the RPG. The time, date, RPG, center azimuth and center range parameter are all entered on the graphic tablet and alphanumeric terminal, for RPG requests, the same as for other products with those parameters. The eight WER elevation angle to plane assignments are selected, via special means which are specified in the next two paragraphs, for RPG one-time requests and RPS list entries. When requesting a WER product for display from the PUP product data base, only the five original product parameters are used for uniquely identifying the product. If WER products are received with more than one set of elevation angle to plane assignments but the time, date, RPG, center azimuth and range are all the same, then only the most recently received version of elevation angle to plane assignments will be accessible.

To avoid the laborious process of requiring the operator to enter eight additional parameters for elevation angle to plane assignments every time a WER product is requested, a unique default and entry method is used for this purpose. [Figure 4-1. WER Plane Assignment Edit Screen](#) indicates the method of setting the default WER elevation angle to plane assignments from the alphanumeric terminal Control menu's WER Plane Assignment Edit screen. The PUP applications software uses the WER default settings when the operator performs the following three activities: 1) Operating from an RPG list; 2) Making a one-time request from the alphanumeric terminal; and 3) Using the parameter select mode on the graphic screen as shown in [Figure 4-1. WER Plane Assignment Edit Screen](#). They are indicated on the WER Plane Assignment Edit screen by elevation number, not elevation angle, where 1 means the lowest elevation angle, 2 means the second lowest elevation angle; etc. The actual angles are determined from the current Volume Coverage Pattern at the RPG at the time of product generation.

Once product parameter select mode is entered on the graphic screen for a WER product, the same elevation angles appear as on the NEXRAD Unit Status Display (8.1.1) which are those of the current Volume Coverage Pattern (VCP) when the dedicated RPG is connected. The default elevation numbers of the WER Plane Assignment Edit screen are assigned to the corresponding elevation angles of the current VCP in the product parameter area (right side) of the graphic screen ([Figure 4-2. WER Parameter Selection Graphic Screen](#)). The selected angles appear in inverse video and the non-selected angles appear normally. If any elevation numbers assigned on the WER Plane Assignment Edit screen ([Figure 4-1. WER Plane Assignment Edit Screen](#)) are greater than the number of angles appearing in the WER product parameter area when entering product parameter select mode ([Figure 4-2. WER Parameter Selection Graphic Screen](#)), then those elevation numbers automatically become unassigned and less than eight angles will appear in inverse video. Also, if less than eight angles are assigned on the WER Plane Assignment Edit Screen ([Figure 4-1. WER Plane Assignment Edit Screen](#)) which is done by placing blanks under one or more Plane Assignment Numbers, then the numbers which are assigned will be the maximum number appearing in inverse video when entering WER product parameter select mode on the graphic screen ([Figure 4-2. WER Parameter Selection Graphic Screen](#)).

To change the assignments on the graphic screen after entering WER product parameter select mode ([Figure 4-2. WER Parameter Selection Graphic Screen](#)), simply place the cursor over an angle appearing in inverse video and depress the correct puck button for the screen it is on to deselect the angle. This may be repeated as many times as desired for all angles to be deselected. The same process is used to select angles which are not in inverse video. Once an angle is deselected or selected, its video state will immediately change to reflect the new selection state. On the graphic screen, a maximum of eight angles may be selected at one time, thus, when eight are selected, a deselection must be made prior to a new selection that is to be made.

If an attempt is made to select more than eight at one time, the selection will be disallowed and a feedback message will indicate this. The angles appear on the graphic screen as an aid to the operator but it is actually the elevation numbers, where 1 is the lowest angle of the current VCP, etc, that are sent to the RPG in the product request.

If, for some reason, the VCP was unassigned at the time of WER product selection, or if it changed between the time the product was selected and the time of generation at the RPG, then whatever selected elevation numbers which apply to the new VCP at the RPG will be used. Selected elevation numbers which do not apply to the current VCP at the RPG are ignored, resulting in a WER product with fewer than eight assigned planes.

On the WER Plane Assignment Edit screen, which sets the defaults, placing the elevation numbers out of numerical order or placing duplicate elevation numbers will result in an automatic reordering into numerical order and elimination of duplicates when the RETURN Key is depressed. If blanks are placed other than at the end, they will be moved to the end, as well. The default setting of these

elevation angle to plane assignments, when the system is loaded, is the lowest 8. If it is desired that the lowest 8 always be the default, then the WER Plane Assignment Edit Screen need never be modified, or if it is modified, it may be set back to the lowest 8 for those to be the operational default settings.

WER PLANE ASSIGNMENY EDIT SCREEN

COMMAND: _

FEEDBACK:

Enter elevation numbers from (lowest) to 20 (highest) and press RETURN.

PLANE	PLANE	PLANE	PLANE	PLANE	PLANE	PLANE	PLANE
1	2	3	4	5	6	7	8
--	--	--	--	--	--	--	--
1	2	3	4	6	7	8	13

Note: This determines the WER Plane assignments if a WER Product request is made from the alphanumeric terminal, or the defaults for a graphic screen request for WER. Blanks may be entered for fewer than 8 plane assignments.

Figure 4-1. WER Plane Assignment Edit Screen

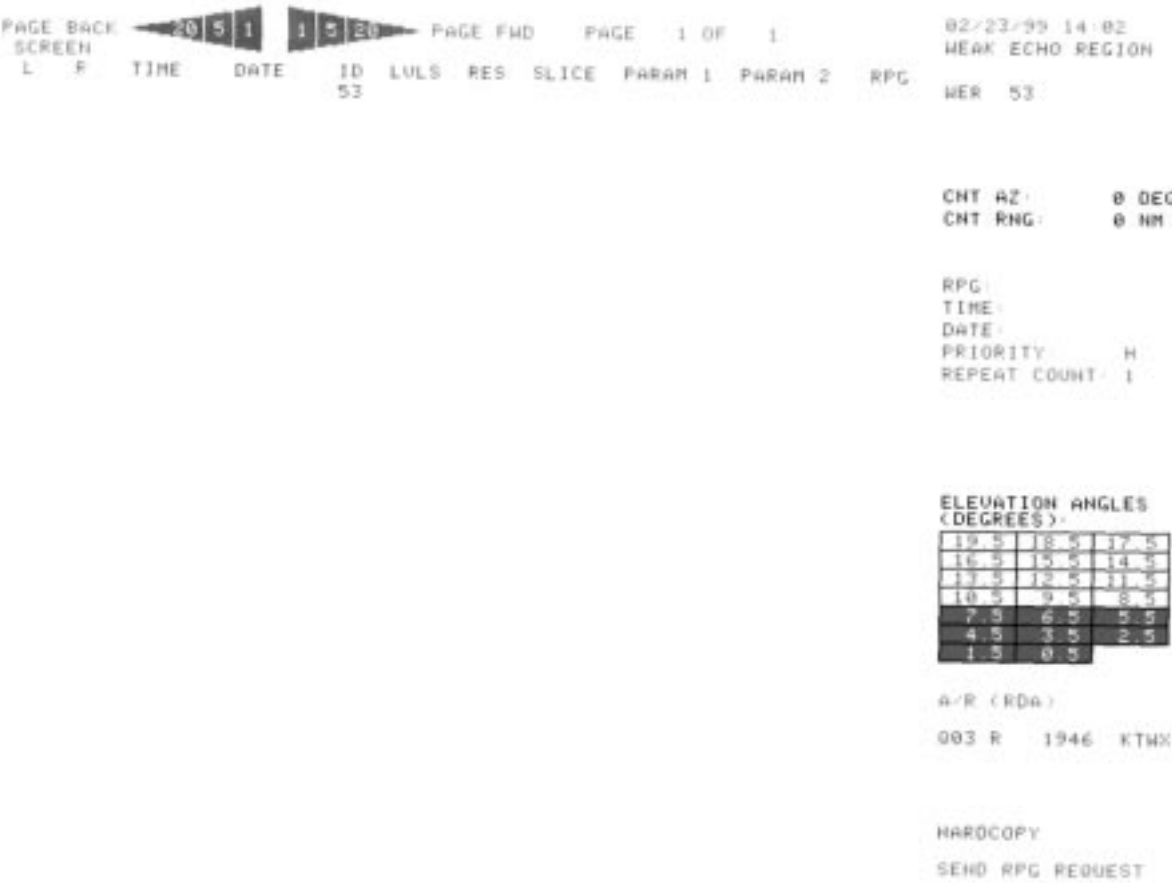


Figure 4-2. WER Parameter Selection Graphic Screen

4-1.3 Display Product Function.

Selection:

Graphic Tablet (only): DISPLAY PRODUCT

Active

Environment: Always active except in graphic edit mode on the selected graphic screen.

Options and

Parameters: Screen (left or right)
Graphic Tablet Mode: Parameter Select or Normal

Defaults: None

Special

Note: Always immediately follow graphic tablet product parameter selections with this function unless a "CANCEL/HELP" or SEND RPG REQUEST is desired.

Operation: This is a dual purpose function. Depending on the current mode of the graphic tablet, it will make a display request for a product; the exact product depends upon the tablet mode.

If the graphic tablet is in normal mode for the selected screen, this function will always display the most recently received graphic product from any RPG (that which was last listed on the RPG Product status lines as having been received). This product may or may not have gone onto the graphic product queue. If it has, selection of this function will not remove it from the queue when it is displayed. If this function is reselected and no new graphic product has arrived since its last selection, the same product will be displayed.

If the graphic tablet is in parameter select mode (see paragraph [4-1.2 Parameter Selection Functions - Graphic Tablet \(Parameter Select Mode - Graphic Tablet\)](#).), selection of this function will result in an attempt to display the product with parameters listed on the selected graphic screen. When in this mode, the selected screen (or quadrant) is always cleared of product data with a product name and all identifying parameters listed instead. Parameter select mode is entered by selecting any product parameter function on the graphic tablet which applies to the product type displayed on the screen. Essentially, DISPLAY PRODUCT is for requesting display after the parameters are altered. The SEND RPG REQUEST option makes it a one-time request to an RPG from the graphic tablet. If the screen is left cleared subsequent to the RPG request, the product will be displayed automatically at the moment of receipt from the RPG. In other words, this function or SEND RPG REQUEST should always follow graphic tablet product parameter selections or they will be cancelled. After this function is selected and the product it requests is found in the data base, the product will be displayed. If the product is not found, the "Pick-A-Product" screen will remain in the product image portion of the screen and SEND RPG REQUEST will again be activated. Even though the "Pick-A-Product" screen remains, it is no longer in parameter select mode once the DISPLAY PRODUCT function is selected. In that case, the operation of this function reverts to displaying the last received product. In other words, do not push DISPLAY PRODUCT twice or SEND RPG REQUEST will no longer be available at the time of the second push.

4-1.4 Pick-A-Product Display Menu.**Selection:**

Graphic Tablet (only): This menu will appear on the graphic screen whenever a graphic product is selected for display and is not found in the PUP data base, or, whenever product parameter select mode is entered by selecting an applicable product parameter, the MATCH PARAMETER, or the DEFAULT PARAMETERS function. It will always appear together with a set of product parameters to its right on the graphic screen.

Active

Environment: Selection of "Pick-A-Product" display menu is always active except in graphic edit mode on the selected graphic screen or when in quarter screen display. Selection from the "Pick-A- Product" display menu is active whenever it is displayed.

Options and

Parameters: Screen (left or right) on which to place the "Pick-A-Product" menu. Options selectable from the "Pick-A-Product" menu are described in the "Operation" selection below.

Defaults: The currently selected product type will determine what products are listed on the menu.

Operation: This display menu contains a listing of the most recent products of the selected type available in the PUP data base and allows the operator to display a listed product directly from the menu. Refer to [Figure 4-3. "Pick-A-Product" Display Menu](#) for the format of the "Pick-A-Product" display menu. This menu will always appear in the product display area of the graphic screen whenever product parameters are listed on the right side of the screen (in lieu of a product). This would occur whenever a graphic product is selected for display and is not in the data base or whenever the operator enters parameter select mode.

To display one of the listed products directly from this menu, simply place the cursor within the screen L or R box to the left of the desired listed product description and depress the puck button FOR THE SCREEN ON WHICH THE MENU APPEARS. If the button for the other screen is depressed, it will merely update cursor coordinates, assuming there is a geographic display on that screen, or else have no effect. If the "L" box is selected, the display will come up on the left terminal. If the "R" box is selected, the display will come up on the right box.

To display the selected product on the left screen, select the "L" box and to display the selected product on the right screen, select the "R" box to the left of the product description. If the selected destination display screen is other than the one on which the "Pick-A-Product" display menu is being selected, and the selected destination screen is in quarter screen mode, then the selected product will be displayed in the currently selected quadrant on that screen. In this case the quadrant selection may be altered following each "Pick-A-Product" selection to allow up to four products to be displayed simultaneously. If a product is selected for display with the destination screen the same as the screen currently being selected from, then the selected product will replace the "Pick-A-Product" display menu immediately upon selection.

RPG:
TIME:
DATE:
PRIORITY: H
REPEAT COUNT:1
REQUEST MAPS:N

A/R (RDA)
 QUEUE EMPTY
 CONNECTION
 PENDING
 DED. RPG LINE 1
 06/0800 OTHER
 USER
 LINE ENABLED

PAGE BACK SCREEN		20	5	1	1	5	20	PAGE FWD			PAGE 1 OF 28		
L	R	TIME	DATE	ID	LVL	RES	SLICE	CENT	AZ	RAN	RPG	KIVY	
		00:01	01/01/86	16	8	54	50.0						
<hr/>													
		17	8	1.1									
<hr/>													
		08:58	05/04/89	18	8	2.2	10.0					KIVY	
		08:53	05/04/89	18	8	2.2	10.0					KIVY	
		08:47	05/04/89	18	8	2.2	10.0					KIVY	
		08:42	05/04/89	18	8	2.2	10.0					KIVY	
		08:37	05/04/89	18	8	2.2	10.0					KIVY	
<hr/>													
		22:53	9/12/89	19	16	.54	1.5					KOUN	
		22:53	9/12/89	19	16	.54	0.5					KOUN	
		22:53	9/12/89	19	16	.54	19.5					KOUN	
		22:53	9/12/89	19	16	.54	14.6					KOUN	
		22:53	9/12/89	19	16	.54	9.9					KOUN	
		22:53	9/12/89	19	16	.54	6.0					KOUN	
<hr/>													
		08:58	05/04/89	20	16	1.1	3.4					KIVY	
		08:58	05/04/89	20	16	1.1	3.4					KOUN	
		08:53	05/04/89	20	16	1.1	3.4					KOUN	
		08:47	05/04/89	20	16	1.1	3.4					KIVY	
		08:47	05/04/89	20	16	1.1	3.4					KOUN	
		08:42	05/04/89	20	16	1.1	3.4					KIVY	
<hr/>													
		08:58	05/04/89	21	16	2.2	6.2					KIVY	
		08:58	05/04/89	21	16	2.2	6.2					KOUN	
		08:53	05/04/89	21	16	2.2	6.2					KOUN	
		08:47	05/04/89	21	16	2.2	6.2					KIVY	
		08:47	05/04/89	21	16	2.2	6.2					KOUN	
		08:42	05/04/89	21	16	2.2	6.2					KIVY	

The "Pick-A-Product" display menu will always be active as long as it is displayed. It will not be replaced until a selection is made to replace it. There are only two reasons why a product listed would not be available for display: 1) the menu has been on the screen for a very long time and the selected product has since been purged from the data base, or 2) the product could not be displayed because it contained bad data.

For product types which have only one product ID number (e.g., VIL and VAD) for the product name listed on the graphic tablet, a maximum of 20 of the most recent products will be displayed on the "Pick-A-Product" menu per page. They are always displayed with the most recent product at the top. For product types with two ID numbers, because there are two resolutions (e.g., CRC), the 20 most recent of each resolution will be listed per page on the "Pick-A-Product" menu, for a maximum of 40. For product types with three ID numbers, because of three resolutions or layers (e.g., SW and (LRM), the 13 most recent products of each resolution will be listed per page for a maximum of 39. For product types with four ID numbers, because of four combinations of resolution and number of data levels (e.g., CR), the nine most recent of each ID number will be listed per page for a maximum of 36. For product types with six ID numbers, because of six combinations of resolution and data levels (e.g., R), the six most recent of each ID number will be listed per page, for a maximum of 36. For each ID, within a product type, there is a dedicated space on the "Pick-A-Product" menu. If there are no products, or fewer than the maximum number of products which space allows for a particular ID, then there will be blank lines within the designated area for the ID with the exception of some identification parameters listed in green. The product ID's dedicated listing areas on the menu are separated by solid horizontal lines in blue. At the top of the screen is a green header identifying the product parameters listed below.

Within the listing for each product ID, products which were generated within the last 15 minutes of the time the "Pick-A-Product" menu is displayed are listed in white. Products generated more than 15 minutes prior to the display of the menu will appear in pumpkin color. This color difference gives the operator the ability to determine at a glance what product IDs have been recently received.

There is a maximum of six to 20 lines for each product ID on each "Pick-A-Product" display page. Paging is available by selection from the arrowhead shaped areas at the top of the display with one, five and 20 pages foreword or back selections available. As on the alphanumeric screen, paging forward goes back in time since the newest products are listed on page one. The number of pages available is indicated, as is the current page number of the display. All graphic products currently in the database are available by paging the Pick-A-Product display.

Notes:

The WER product does not list plane assignments as product parameters on the Pick-A-Product screen because the eight plane assignments are only used to request the product from the RPG, not access it from the PUP data base. With all other parameters being equal, i.e., time, date, RPG, azimuth and range, then only one set of plane assignments is accessible.

For cross section products, only the azimuth and range of the westernmost point of the cross section is listed on the Pick-A-Product display.

Section 4-2: Display Alphanumeric Products (by Parameters)

Alphanumeric products are products requested from an RPG (or generated locally in the case of PUP Text Message) which are listed in [Table 4 - 1: Product Parameters](#) with the Screen column blank in that table. These are displayable only on the alphanumeric terminal. Additional alphanumeric products called "paired" alphanumeric products, are received along with certain graphic products and can not be requested separately from the RPG but can be from the PUP data base. They may be requested individually by parameter, as described in this section, or simply by "pairing" with a current graphic display as described in Section 4.3.

Selection of alphanumeric products for display by specifying parameters is only available via the alphanumeric terminal "(D)ISPLAY,(A)LPHANUMERIC PRODUCT, <prod-name>" command as described in Section 4.2.1.

4-2.1 Display Alphanumeric Product Command.

Selection:

Alphanumeric (only): (D)ISPLAY,(A)LPHANUMERIC PRODUCT, <prod-name> (goes to product select edit screen)

Active

Environment: Always active except in an RPS edit screen.

Options and

Parameters: Product Name (mnemonic), RPG, Time, Date, (also RPG transmission parameters)

Defaults:

RPG = Associated (blank)

Time = Most recent stored in data base (blank)

Date = Most recent stored in data base (blank)

Product = User Alert Message

Operation:

If Return is depressed following the entry of the command string "(D)ISPLAY,(A)LPHANUMERIC PRODUCT," a list of alphanumeric product mnemonics will be displayed. If the mnemonic for the desired product is known, it should be entered for "<prod-name>" to complete the command string. At that point, the Alphanumeric Product edit screen will be displayed to give the operator the opportunity to change the listed default parameters prior to product display request. If the time and date are entered, then the product generation time, plus or minus four minutes, will be searched for a match. If the RPG is changed, only such a product from the specified RPG will be searched. Following depression of RETURN, after the edit screen is displayed, the alphanumeric product, page 1, will be displayed if available. If not available, "SEND RPG REQUEST" will appear on the feedback line to indicate that the selected product is not in the PUP data base and the request may be forwarded to the selected RPG by depression of function key 10 (SEND RPG REQUEST). Alternately, an asterisk (*) entered in the time field will skip the PUP data base search and immediately forward the request to the RPG.

Table 4 - 1: Product Parameters

PRODUCT NAME (MNEMONIC)	PRODUCT ID	PRODUCT PARAMETERS (SEE NOTE)	RANGE
BASE REFLECTIVITY (R)	16	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	8 .54 0.0 - 20.0
BASE REFLECTIVITY (R)	17	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	8 1.1 0.0 - 20.0
BASE REFLECTIVITY (R)	18	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	8 2.2 0.0 - 20.0
BASE REFLECTIVITY (R)	19	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	16 .54 0.0 - 20.0
BASE REFLECTIVITY (R)	20	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	16 1.1 0.0 - 20.0
BASE REFLECTIVITY (R)	21	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	16 2.2 0.0 - 20.0
BASE SPECTRUM WIDTH (SW)	28	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	.13 0.0 - 20.0
BASE SPECTRUM WIDTH (SW)	29	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	.27 0.0 - 20.0
BASE SPECTRUM WIDTH (SW)	30	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	.54 0.0 - 20.0
BASE VELOCITY (V)	22	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	8 .13 0.0 - 20.0
BASE VELOCITY (V)	23	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	8 .27 0.0 - 20.0
BASE VELOCITY (V)	24	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	8 .54 0.0 - 20.0
BASE VELOCITY (V)	25	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	16 .13 0.0 - 20.0
BASE VELOCITY (V)	26	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	16 .27 0.0 - 20.0
BASE VELOCITY (V)	27	DATA LEVELS RESOLUTION (nm) ELEVATION (degrees)	16 .54 0.0 - 20.0
CLUTTER FILTER CONTROL (CFC)	34	DATA LEVELS RESOLUTION (nm) ELEVATION SEGMENT CHANNEL	8 .54 1-2 S OR D

Note: The following product parameters are applicable for all products.

PRODUCT PARAMETER	RANGE
TIME DATE RPG	00:00 - 23: 59 01/01.70 - Today 4 Letter Mnemonic

Table 4 - 1: Product Parameters (Cont)

PRODUCT NAME (MNEMONIC)	PRODUCT ID	PRODUCT PARAMETERS (SEE NOTE)	RANGE
COMBINED MOMENT (CM)	49	ELEVATION (degrees) AZMUTH RANGE	0.0 - 20.0 0-359 0-124
COMBINED SHEAR (CS)	87		
COMBINED SHEAR CONTOUR (CSC)	88		
COMPOSITE REFLECTIVITY	35	DATA LEVELS RESOLUTION (nm)	8 .54
	36	DATA LEVELS RESOLUTION (nm)	8 2.2
	37	DATA LEVELS RESOLUTION (nm)	16 .54
	38	DATA LEVELS RESOLUTION (nm)	16 2.2
COMPOSITE REFLECTIVITY CON- TOUR (CRC)	39	RESOLUTION (nm)	.54
	40	RESOLUTION (nm)	2.2
DIGITAL HYBRID REFLECTIVITY	32	NONE (Non-displayable)	N/A
REFLECTIVITY CROSS SECTION (RCS)	50	DATA LEVELS END PT 1 AZMUTH (degree) END PT 1 RANGE (nm) END PT 2 AZMUTH (degree) END PT 2 RANGE (nm)	16 0-359 0-124 0-359 0-124
	85	DATA LEVELS END PT 1 AZMUTH (degree) END PT 1 RANGE (nm) END PT 2 AZMUTH (degree) END PT 2 RANGE (nm)	8 0-359 0-124 0-359 0-124
SPECTRIM WIDTH CROSS SECTION (SCS)	52	DATA LEVELS END PT 1 AZMUTH (degree) END PT 1 RANGE (nm) END PT 2 AZMUTH (degree) END PT 2 RANGE (nm)	8 0-359 0-124 0-359 0-124
VELOCITY CROSS SECTION	51	DATA LEVELS END PT 1 AZMUTH (degree) END PT 1 RANGE (nm) END PT 2 AZMUTH (degree) END PT 2 RANGE (nm)	16 0-359 0-124 0-359 0-124

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Note: The following product parameters are applicable for all products.

PRODUCT PARAMETER	RANGE
TIME	00:00 - 23: 59
DATE	01/01.70 - Today
RPG	4 Letter Mnemonic

Table 4 - 1: Product Parameters (Cont)

PRODUCT NAME (MNEMONIC)	PRODUCT ID	PRODUCT PARAMETERS (SEE NOTE)	RANGE
	86	DATA LEVELS END PT 1 AZMUTH (degree) END PT 1 RANGE (nm) END PT 2 AZMUTH (degree) END PT 2 RANGE (nm)	8 0-359 0-124 0-359 0-124
ECHO TOPS (ET)	41		
ECHO TOPS COUNTER (ETC)	42		
HAIL INDEX (HI)	59		
HOURLY DIGITAL PRECIP ARRAY (DPA)	81		
HYBRID SCAN REFLECTIVITY (HSR)	33		
LAYER COMPOSITE REFLECTIVITY AVERAGE (LRA)	63		
	64		
	89		
LAYER COMPOSITE REFLECTIVITY MAXIMUM (LRM)	65	LAYER	L(ow)
	66	LAYER	M(id)
	90	LAYER	H(igh)
LRM AP REMOVED (APR)	67		
MESOCYCLONE (M)	60		
RADAR CODED MESSAGE (RCM)	*74		
	**83		
SEVERE WEATHER ANALYSIS RADIAL SHEAR (SWR)	46	ELEVATION AZIMUTH (degree) RANGE (nm)	0.0 - 20.0 0-359 0-124
SEVERE WEATHER ANALYSIS REFLECTIVITY (SWR)	43	ELEVATION AZIMUTH (degree) RANGE (nm)	0.0 - 20.0 0-359 0-124
SEVERE WEATHER ANALYSIS SPEC- TRUM WIDTH (SWW)	45	ELEVATION AZIMUTH (degree) RANGE (nm)	0.0 - 20.0 0-359 0-124
SEVERE WEATHER ANALYSIS VELOCITY (SWV)	44	ELEVATION AZIMUTH (degree) RANGE (nm) SPEED DIRECTION	0.0 - 20.0 0-359 0-124 *** ***
SEVERE WEATHER PROBABILITY (SWP)	47		

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Note: The following product parameters are applicable for all products.

PRODUCT PARAMETER	RANGE
TIME	00:00 - 23: 59
DATE	01/01.70 - Today
RPG	4 Letter Mnemonic

Table 4 - 1: Product Parameters (Cont)

PRODUCT NAME (MNEMONIC)	PRODUCT ID	PRODUCT PARAMETERS (SEE NOTE)	RANGE
<p>*EDITED ALPHANUMERIC RCM PRODUCT AVAILABLE AT ALL PUPs RPG Ops ON THE ALPHANUMERIC TERMINAL VIA THE *DISPLAY MENU* (D,A,RCM)</p> <p>**THIS PRODUCT NORMALLY AVAILABLE ONLY AT PUPs RPG Ops DESIGNATED FOR RCM EDITING. THIS IS THE UNEDITED GRAPHIC AND ALPHANUMERIC RCM PRODUCT AVAILABLE ON THE GRAPHIC TABLET AS RCM AND ON THE ALPHANUMERIC TERMINAL FROM THE "EN AND DISTRIBUTE PRODUCTS MENU". AS A ONE TIME REQUEST THIS IS ONLY REQUESTABLE FROM THE ASSOCIATED RPG VIA THE GRAPHIC TABLET FROM THOSE PUPs WHOSE ADAPTATION DATA "RCM EDIT" FLAG IS SET.</p> <p>***AT THE PUP THE OPERATOR MAY ONLY SPECIFY WHETHER THE RPG DETERMINED STORM SPEED AND DIRECTION ARE TO BE FACTORED INTO THE PRODUCT. SPECIFIC SPEED AND DIRECTION VALUES CANNOT BE ENTERED BY THE PUP OPERATOR FOR THIS PRODUCTION. ENTER BLANKS IN THESE FIELDS TO SELECT THE RPG DETERMINED STORM SPEED AND DIRECTION. ENTER ZEROS OTHER WISE. SRR REPLACES SWP FOR NON-ZERO STORM SPEED.</p>			
STORM RELATIVE MEAN RADIAL VELOCITY MAP (SRM)	56	ELEVATION SPEED DIRECTION (degrees)	0.0 - 20.0 0-185 0-359
STORM RELATIVE MEAN RADIAL VELOCITY REGION (SRR)	55	ELEVATION AZIMUTH RANGE SPEED DIRECTION (degrees)	0.0 - 20.0 0-359 0-124 0-185 0-359
STORM STRUCTURE (SS)	62		
STORM TOTAL PRECIPITATION (STP)	80		
STORM TRACKING INFORMATION (STI)	58		
SUPPLEMENTAL PRECIPITATION DATA (SPD)	82		
ONE HOUR PRECIPITATION ACCUMULATION (OHP)	78		
THREE HOUR PRECIPITATION ACCUMULATION (THP)	79		
TORNADO VORTEX SIGNATURE (TVS)	61		
USER ALERT MESSAGE (UAM)	73		
USER SELECTABLE PRODUCT (USP)	31	DATA LEVELS RESOLUTION (nm) DURATION (hours) END HOUR (hours)	16 1.1 1-24 0-23
VELOCITY AZIMUTH DISPLAY (VAD)	84	ALTITUDE	1-70
VELOCITY AZIMUTH DISPLAY WIND PROFILE (VWP)	48		
VERTICALLY INTEGRATED LIQUID (VIL)	57		
WEAK ECHO REGION*** (WER)	53	AZIMUTH (degree) RANGE (nm)	0-359 0-248

Table 4 - 1: Product Parameters (Cont)

***NOTE: THE WER PRODUCT ALSO HAS DEFALUT PLANE ASSIGNMENT VALUES WHICH ARE STORED IN THE PROGRAM STATE FILE. THESE PLANE ASSIGNMENTS DEFINE THE ELEVATION CUTS USED TO GENERATE THE PRODUCT.			

Note: The following product parameters are applicable for all products.

PRODUCT PARAMETER	RANGE
TIME	00:00 - 23: 59
DATE	01/01.70 - Today
RPG	4 Letter Mnemonic

Table 4 - 1: Product Parameters (Cont)

PRODUCT NAME (MNEMONIC)	TRANSMISSION PARAMETERS				DISPLAY PARAMETERS
	PRODUCT ID	REQUEST PRIORITY	REPEAT COUNT	REQUEST MAPS	SCREEN
BASE REFLECTIVITY	16	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	17	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	18	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	19	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	20	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	21	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
BASE SPECTRUM WIDTH (SW)	28	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	29	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	30	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
BASE VELOCITY (V)	22	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	23	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	24	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	25	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	26	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
	27	L or H	1 - 9	Y or N	L, R, L1-L4 R1-R4
COMBINED MOMENT (CM)	49	L or H	1-9		L or R
COMBINED SHEAR (CS)	87	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
COMBINED SHEAR CON- TOUR (CSC)	88	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
COMPOSITE REFLECTIV- ITY (CR)	35	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
	36	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
	37	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
	38	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
COMPOSITE REFLECTIV- ITY CONTOUR (CRC)	39	L or H	1-9	Y or N	L, R, L1-L4, R1-R4

Table 4 - 1: Product Parameters (Cont)

PRODUCT NAME (MNEMONIC)	TRANSMISSION PARAMETERS				DISPLAY PARAMETERS
	PRODUCT ID	REQUEST PRIORITY	REPEAT COUNT	REQUEST MAPS	SCREEN
	40	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
DIGITAL HYBRID REFLECTIVITY (DHR)	32	N/A	N/A	N/A	N/A
DIGITAL STORM TOTAL PRECIPITATION (DSP)	33	N/A	N/A	N/A	N/A
REFLECTIVITY CROSS SECTION (RCS)	50	L or H	1-9		L or R
	85	L or H	1-9		L or R
SPECTRUM WIDTH CROSS SECTION (SCS)	52	L or H	1-9		L or R
VELOCITY CROSS SECTION (VCS)	51	L or H	1-9		L or R
	86	L or H	1-9		L or R
ECHO TOPS (ET)	41	L or H	1-9	Y or N	L, R, L1-L4, R1-R4

Table 4 - 1: Product Parameters (Cont)

PRODUCT NAME (MNEMONIC)	TRANSMISSION PARAMETERS				DISPLAY PARAMETERS SCREEN
	PRODUCT ID	REQUEST PRIORITY	REPEAT COUNT	REQUEST MAPS	
ECHO TOPS CONTOUR (ETC)	42	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
HAIL INDEX (HI)	59	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
HOURLY DIGITAL PRECIP ARRAY (DPA)	81	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
HYBRID SCAN REFLEC- TIVITY (HSR)	33	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
LAYER COMPOSITE REFLECTIVITY AVERAGE (LRA)	63	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
	64	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
	89	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
LAYER COMPOSITE REFLECTIVITY MAXIMUM (LRM)	65	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
	66	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
	90	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
LRM AP REMOVED (APR)	67	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
MESOCYCLONE (M)	60	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
RADAR CODED MESSAGE (RCM)	74	L or H	1-9	Y or N	
	83				L, R, L1-L4, R1-R4
SEVERE WEATHER ANAL- YSIS RADIAL SHEAR (SWS)	46	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
SEVERE WEATHER ANAL- YSIS REFLECTIVITY (SWR)	43	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
SEVERE WEATHER ANAL- YSIS SPECTRUM WIDTH (SWW)	45	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
SEVERE WEATHER ANAL- YSIS VELOCITY (SWV)	44	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
SEVERE WEATHER PROB- ABILITY (SWP)	47	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
STORM RELATIVE MEAN RADIAL VELOCITY MAP (SRM)	56	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
STORM RELATIVE MEAN RADIAL VELOCITY REGION (SRR)	55	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
STORM STRUCTURE (SS)	62	L or H	1-9		

Table 4 - 1: Product Parameters (Cont)

PRODUCT NAME (MNEMONIC)	TRANSMISSION PARAMETERS				DISPLAY PARAMETERS
	PRODUCT ID	REQUEST PRIORITY	REPEAT COUNT	REQUEST MAPS	SCREEN
STORM TOTAL PRECIPITATION (STP)	80	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
STORM TRACKING INFORMATION (STI)	58	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
SUPPLEMENTAL PRECIPITATION DATA (SPD)	82	L or H	1-9		
ONE HOUR PRECIPITATION DATA (OHP)	78	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
THREE HOUR PRECIPITATION DATA (THP)	79	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
TORNADO VORTEX SIGNATURE (TVS)	61	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
USER ALERT MESSAGE (UAM)	73	L or H	1-9		
USER SELECTABLE PRODUCT (USP)	31	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
VELOCITY AZIMUTH DISPLAY (VAD)	84	L or H	1-9		L or R
VELOCITY AZIMUTH DISPLAY WIND PROFILE (VWP)	48	L or H	1-9		L or R
VERTICALLY INTEGRATED LIQUID (VIC)	57	L or H	1-9	Y or N	L, R, L1-L4, R1-R4
WEAK ECHO REGION (WER)	53	L or H	1-9		L or R

The top right portion of the display of page one of the alphanumeric product indicates the total pages available of the product. Other pages are accessible by depressing function keys 7 (Page Forward) or 6 (Page Back) or by selection of the immediate page access command: (P)AGE,<N> where N is the page number. If there is a partial command remaining on the command line, depress function key 3 to clear it prior to entry of the page command.

Notes: Display of a Supplemental Precipitation Data (SPD) product created by a pre-9.0 version of the RPG software, results in a feedback message "UNABLE TO DISPLAY PRODUCT" at the alphanumeric terminal.

Section 4-3: Paired Alphanumeric Product Display

Certain graphic products, when requested and received from an RPG, automatically have alphanumeric products paired with them. They are stored in the PUP data base as separate products and are available for display as either separate products or paired together. When only the alphanumeric portion is to be displayed, it should be selected as described in Section 4.2. When the graphic and alphanumeric portions are to be displayed simultaneously (on one graphic screen and the alphanumeric screen), the commands described here are to be used.

The following is the list of currently defined paired graphic/alphanumeric products:

VAD Wind Profile (VWP)

Storm Tracking Information (STI)

Hail Index (HI)

Mesocyclone (M)

Tornado Vortex Signature (TVS)

Combined Shear (CS)

Combined Shear Contour (CSC)

Storm Total Precip (STP)

One Hour Precip (OHP)

Three Hour Precip (THP)

4-3.1 Display Paired Product Commands.

Selection:

Alphanumeric (only): (D)ISPLAY,(GP)GRAPHIC AND PAIRED ALPHA, <prod-name>
(goes to edit screen at this point)

-or-

(D)ISPLAY,(P)AIRED ALPHANUMERIC PRODUCT, <screen>

Active

Environment: The "GP" command is available whenever the graphic screen selected on this edit screen is available (e.g., not in edit mode.)

The "P" command is available only when there is a graphic product of the correct type (one which has a paired alpha product) currently displayed on the selected graphic screen.

Options and

Parameters: For the "GP" command, the options are the same as for the display of other graphic products (see [4-1.1 Display a Specific Product - Graphic.](#)).

For the "P" command, the only option is the graphic screen (L or R) on which the graphic portion is already displayed.

- Defaults: Screen = Left (from alphanumeric edit screen)
 RPG = Associated, Dedicated Line
 Time = Most recent stored in data base
 Date = Most recent stored in data base
 Product Dependent Parameters = (See [Table 4 - 1: Product Parameters](#))
 Request Priority = H
 Repeat Count = 1 (one request only)
 Request with Background Maps = No
- Operation: The "(D)ISPLAY,(GP)GRAPHIC AND PAIRED ALPHA,<prod-name>" command will attempt to simultaneously display the selected graphic and the alphanumeric paired products on both the graphic screen (which is selected on the edit screen which follows command entry) and the alphanumeric screen. If the products are available (either both or neither should be available) in the PUP data base, they will both be displayed. If they are not available, the "SEND RPG REQUEST" message appears on the feedback lines and the request (for both) may be forwarded to the RPG via function key 10 (SEND RPG REQUEST) or by selection of that function on the graphic tablet with the appropriate screen button.
- Note, that this command is entered as any other listed command, even though "GP" are not the first two characters of a word. That is "GP", "GPG", "GPGR", etc., may be entered for that field.
- The "(D)ISPLAY,(P)AIRED ALPHANUMERIC (P)RODUCT,<screen>" command is for the purpose of displaying page 1 of the alphanumeric paired product which corresponds to a graphic product already on a graphic display. In this case, the <screen> merely identifies the graphic screen the product is on. If there is no valid graphic product on the selected graphic screen, it will be indicated by a feedback message.
- Notes: If paired products are displayed and the PRODUCT FORWARD or PRODUCT BACKWARD function is used to display a different version on the graphic screen, this latter command is useful to "match" the alphanumeric portion. If this operation is to be repeated, then function key 4 (RESTORE COMMAND), followed by Return, is all that is necessary to repeat the match up.

Section 4-4: Display Products From Product Lists

When a list of available products (for a single product ID) in the PUP data base is displayed on the alphanumeric terminal via the "(S)TATUS,(P)RODUCTS IN PUP DATABASE,<prod-id#>" command, products may be selected directly off that list for display. This is applicable to both graphic and alphanumeric product types. If it is a paired graphic and alpha product, only the graphic portion is displayed with this procedure.

It must be noted that, when products are displayed via this method, no default product parameters are changed, since in this case they are not specifically selected.

Section 4.4.1 describes the command which performs this function.

4-4.1 Display Product from List Command.

Selection:

Alphanumeric (only): (S)TATUS,(P)RODUCTS IN PUP DATA BASE,
(D)ISPLAY,<LINE#>,<scr-quad>

Active

Environment: Active ONLY when a list of available products for one product ID is CURRENTLY DISPLAYED on the alphanumeric screen. Also, when displaying a graphic product, the selected graphic screen must be available as noted in the Active Environment paragraph of [4-1.1 Display a Specific Product - Graphic](#).

Options and

Parameters: Product ID (previously selected for list) Line # of list on which desired product is listed Screen (and quadrant if desired) for display: L or R (enter ";" for an alphanumeric product) or L1 through L4 or R1 through R4 for quadrants.

Defaults: The <scr-quad> will default to "L" which means left screen (full) for graphic products or the alphanumeric screen (in this case only) for alphanumeric products. Defaults are selected via a semicolon (;) at this position of the command.

Operation: This command is available only after the "(S)TATUS,(P)RODUCTS IN PUP DATABASE,<prod-id#>" command has listed a set of products on the screen (Reference the "Products in PUP Database for Product <prod-id#>" Display in Appendix A.). Once a list of products is on the screen, it will identify a separate line number, in the left column, beginning with 1, which is assigned to each individual product version listed. Each version listed has all applicable product parameters listed across the line. Products are listed according to generation time with the most recent first. Usually the list is multiple pages, although each product version has a unique line number, regardless of what page it is listed on. A product may be displayed from the list even if the particular page it is listed on is not currently on the display. This is true as long as some page is listed.

Notes: This screen will list all available products in the data base. The "Pick-A-Product" menu will also list all graphic products in the data base (see Section 4.1.4).

The easiest way to display multiple products in succession from such a list is to enter this command once, e.g., S,P,D,1,L, then, to display another product, use function key 4 (RESTORE COMMAND) to return this command to the command line. Then, use the Move Cursor keys (left arrow) or (right arrow) to position the cursor over the line number (1 in this example). Then, type over it with a new line number and depress

Return to select the new product for display. To increase the number of digits in the line number and shift the rest of the command to the right, use the Insert Mode key after positioning the cursor. To decrease the number of digits, just type a space over any digit to be eliminated, prior to selection of Return.

Section 4-5: One-time Product RPG Requests

All product requests to non-associated RPGs (see paragraph [4-5.2 Non-Associated RPG Requests](#)), as well as all product requests to the associated RPG over the dial-up line must be one-time product requests. In addition, one-time requests can be made to the associated RPG over the dedicated line. A one-time product request is a product request performed apart from the products listed on the Routine Product Set List which the RPG sends on a continual basis when they are available.

A single one-time product request may actually be for up to nine sequential volume scan versions if the request is to the associated RPG over a dedicated communication line. For any dial-up line, the request is valid only for a single volume scan version. In this case, once the request is honored, assuming no additional requests are made to the same RPG while the line is connected, the PUP will automatically disconnect the line when transmission is complete.

For dial-up line connections, these connections and disconnections are all performed automatically. There is a table of RPG phone numbers in adaptation data which are automatically used based on the RPG indicated in the request.

One-time product requests are made the same way display requests from the PUP data base are made. In fact, the operator might normally check the PUP data base for a product, then simply forward the request to the RPG if the product is not found. This is done via a normal Display request (see [Section 4-1: Display Graphic Products \(by Parameters\)](#) and [Section 4-2: Display Alphanumeric Products \(by Parameters\)](#)) followed by a SEND RPG REQUEST selection if the product is not found (see Section 4.5.1).

If it is known ahead of time that the desired product is not in the PUP data base, the request may be forwarded directly to the RPG without first trying to display it. This option is only available when the request is made manually, after at least one parameter selection (parameter select mode) from the graphic tablet. This is done via the SEND RPG REQUEST function, which may be selected instead of DISPLAY PRODUCT following parameter entries on the graphic tablet. If DISPLAY PRODUCT is selected following parameter entry, then the request will first search the PUP data base, and if the product is not available the SEND RPG REQUEST will be displayed on the feedback line. The operator can issue a SEND RPG REQUEST to receive the product as a one-time product request.

Placing an asterisk in the time field when selecting via the alphanumeric terminal "Display" command will skip the PUP data base search and forward the request to the indicated RPG.

If time and date are left blank for a Display Product Request from the PUP data base, the data base will be searched for the most recent time/date for the product as long as all the other parameters match. If none is found and the SEND RPG REQUEST is used to forward the request to the RPG, a current version of the product will be requested.

Older versions of a product, as long as they are still available in the RPG's database, may be obtained by entering the desired date and time. Use the BLANK TIME DATE function at the graphic tablet if it is desired to return the time and date parameters to blanks.

Once a product is received and stored in the PUP data base, it is available for display in the same manner whether it was obtained from a one-time request or a Routine Product Set request. An exception to this is the Graphic Auto Display which will only display products listed on the active Routine Product Set List.

The function available for forwarding one-time product requests to the RPG is discussed in Section 4.5.1 Send RPG Request.

Notes: Use of the Time and Date parameters in one-time RPG requests and PUP display requests is as follows:

A. Time and date parameters NOT SPECIFIED (blank):

1. For a PUP display request:

Searches the PUP data base for the most recent product that satisfies all applicable product parameters (except time and date).

2. For an RPG request:

For volume scan products, the product is generated from the previous or next volume scan, depending on the capability designed into the RPG for the product type.

For elevation based products:

If the elevation angle requested is at or below the current elevation angle being scanned, then the product is generated from the current volume scan. If the elevation angle requested has not yet been reached, then the product is generated from the previous volume scan (i.e. produced by the RPG from base data stored on its disk and "replayed").

B. Time and date parameters SPECIFIED:

1. For a PUP display request:

Searches the PUP data base for the product which satisfies all applicable product parameters for a time window within plus or minus four minutes of the specified time.

2. For an RPG request:

The RPG searches its data base for a product that satisfies all applicable product parameters for a time window within 15 minutes of the specified time and date. If found, the product is sent, otherwise a PROD NOT GEN (product not generated) message is returned to the PUP. Note that if the time specified is within the RPGs current volume scan and the product has not yet been generated, a PROD NOT GEN message will also be returned in this case.

C. Time parameter set to an asterisk (*) at the alphanumeric terminal:

1. For a PUP display request:

Using this method skips the PUP data base search and forwards the request directly to the RPG.

2. For an RPG request:

Same as for an RPG request in A. above (time and date parameters not specified).

4-5.1 Send RPG Request Function.

Selection:

Graphic Tablet: SEND RPG REQ

Alphanumeric: Function Key 10, SEND RPG REQUEST

Active

Environment: Active in parameter select mode and whenever a product has been selected for display, as the immediately preceding request, and the product is not in the PUP data base. This function will be active for whichever of the three screens the "SEND RPG REQUEST" feedback message appears on, for the product that was requested for that screen, only.

Options and Parameters: Screen (left, right, or alphanumeric)
 All Product Parameters (previously selected for that display)
 Request Priority (selected with display parameters)
 Repeat Count (selected with display parameters)
 Request with Maps (selected with display parameters)

Defaults: The Product, Request Priority, Repeat Count, and Request with Maps are all determined at the time of the immediately preceding display request. See Display a Specific Product - Graphic and Alphanumeric for a description of these selections.

Operations: This function will forward a one-time product request to an RPG. This function is only active for any one of the three given screens on which a product has just been requested for display and is not in the PUP data base, or immediately after selecting product parameters at the graphic tablet. It is totally dependent on the state of the ONE screen for which it is selected. The three screens operate independently, in this case, so this function may be active separately for any combination of from 0 to 3 screens. This function may be active, in this case, on both the graphic tablet (the selected screen button only) and on the alphanumeric terminal (function key 10) for the same graphic product, and may be selected from either place if the request for the graphic product was made from the alphanumeric terminal. In all other cases, however, any single request will only be active for one screen. Thus, alphanumeric product one-time requests are only active from the alphanumeric terminal SEND RPG REQUEST function key.

At the time of the SEND RPG REQUEST selection, the only parameter which can be selected is the screen (for which the selection is made) which determines which product request is to be sent. All the product determination parameters as well as the three product transmission parameters - Request Priority,

Repeat Count, and Request With Maps, must be determined prior to this, even though the three transmission parameters only become meaningful at this time. Normally, these three transmission parameters will default to the desired conditions: Request Priority = High, Repeat Count = 1 (one volume scan only), and Request with Maps = No (no background maps to be included), and they can be ignored. In some cases, however, it is necessary to change them, e.g., when it is the first recent request to a non-associated RPG and background maps are required. Normal procedure would be: Ignore the transmission parameters, unless it is likely that the product request is to be forwarded, request display of the product, and if it is not found, go back and select the transmission parameters and any other parameters whose defaults might have caused a change. Then, select SEND RPG REQUEST to forward the request to the RPG.

If the graphic screen is left cleared following a request in this manner for a graphic product, the product will automatically be displayed as soon as it is received.

In the case of an alphanumeric product one-time request, the product will be displayed automatically only if function key 7, AUTO ALPHA is selected following function key 9, SEND RPG REQUEST; otherwise, it will be queued when it arrives.

4-5.2 Non-Associated RPG Requests.

Products, both graphic and alphanumeric, may be requested from any non-associated RPG whose identification number, mnemonic, and telephone number are listed in the PUP's adaptation data RPG List described in paragraph [13-2.8 Narrowband Line Definitions](#). Assuming a dial-up communication line is enabled (see [Section 7-5: Communication Line Control](#)), the operator only has to change the one-time product request parameter "RPG" from blank (which means associated RPG over the dedicated communications link) to the desired RPG mnemonic. This applies both to the graphic tablet parameter select mode and the alphanumeric one-time product requests (see [Section 4-1: Display Graphic Products \(by Parameters\)](#) and [Section 4-2: Display Alphanumeric Products \(by Parameters\)](#)). Then, simply make the request like any other one-time product request. The PUP does everything else. First, it waits for the dial-out communications line to become free. When it is, the PUP looks up the telephone number, dials the number, waits for the RPG to answer, sends the request, waits for the response (the product or a product not available message), files the product into the PUP data base (if received), disconnects the line, and notifies the operator of the response. If the RPG does not answer, the PUP automatically retries the request two or three times before giving up.

Changing of the RPG parameter may be accomplished in two ways: 1) by selection of the RPG parameter from the left side of the graphic tablet and keying in the four letter RPG mnemonic followed by "RET" from the alphanumeric keyboard section of the tablet, or, 2) by using one of the five pre-assigned RPG functions located in the lower left corner of the tablet. The five functions are called DED ASSOC RPG, DIAL-UP ASSOC RPG, RPG 1, RPG 2, and RPG 3. Selection of DED ASSOC RPG simply blanks out the RPG field which assigns the product request to the associated RPG over the dedicated communications link. This is the default value for the RPG parameter and selection of DED ASSOC RPG will normally only be required if another RPG ID was previously entered. DIAL-UP ASSOC RPG places the four letter mnemonic of the associated RPG in the parameter field which assigns the product request to the associated RPG over the dial-up communications link. This would normally only be used if the dedicated line was not available due to failure. The RPG 1, RPG 2 and RPG 3 functions are operator selectable RPGs that will put the mnemonic, as determined by adaptation data category 23, in the RPG parameter field which assigns the product requests to the indicated RPG over the dial-up communication link. These would normally be neighboring RPGs that are called frequently. See paragraph [13-3.11 Graphic Tablet Selection to Function Assignments \(Category 17\)](#) for the setting of these pre-selected RPGs.

Up to 40 one-time product requests can be queued for a dial-up line, however, it should be noted that if the PUP system has more than one dial-up line configured, the maximum number of allowable requests remains at 40. If the operator makes more one-time product requests while there are still 40 unsatisfied requests, a "REQUEST VOID" message will appear for each product request thrown away. The messages will appear on the graphic and alphanumeric screens (see paragraph [8-2.10.1 RPG Product Status Lines Contents Explanation](#)). One-time requests are honored on a first come first serve basis (FIFO). For example, given a system configuration of 3 dial-up lines and 30 product requests to KMIA, 10 to KIAD, and 10 to KPHL, the first 40 requests will be queued (30 to KMIA and 10 to KIAD) and the last 10 to KPHL will be thrown away as indicated by the "REQUEST VOID" messages.

On occasion, unsuccessful dial-up line connections can occur due to hardware or software errors. Still other conditions may arise such as a busy signal or no answer at the RPG end. Given any of these conditions, the dial-up queue is cleared of only those requests to the RPG of the last request. The operator will be informed of all discarded requests via "REQUEST VOID" messages. Processing will continue with the next request to a different RPG.

Note that graphic products received from non-associated RPGs will not have background maps (except Polar Grid, Range Rings, and RDA site) displayable with them unless a set of maps has been requested and received from that RPG, or read in from archive, and not yet been deleted from the (product) data base. It is recommended to make and keep an archive disk with sets of maps from var-

ious RPGs from which products are likely to be requested (these may be added to the optical disk after receipt). This would avoid taking up transmission time on the dial-up communication line when these maps are needed. Refer to [Section 6-11: Background Map Display Functions](#) for a more complete description of background maps from non-associated RPGs. Refer to paragraph [10-2.4 Continuous Archiving of Products/Maps \(Auto Archive\)](#), and paragraph [10-2.10 Read PUP Product Data Base Capacity](#), for a description of archiving and reading in archived background maps.

Note that all products received from non-associated RPGs need their RPG mnemonic supplied when requested from the PUP data base for display with the exception of display from a queue or when the product name is selected from the graphic tablet and it is the latest received product. Also note, that the PRODUCT FORWARD and PRODUCT BACK functions on the graphic tablet will always match the RPG mnemonic when being performed, as well as the fact that the "Pick-A-Product" display menu includes products from all RPGs.

The product annotation area of a displayed product includes a description of the RDA/RPG mnemonic, location, and elevation. When an overlay product is requested, as an overlay on a main product from a non-associated RPG, the RPG mnemonic must match (as well as the time) or it will not be displayed.

Section 4-6: Routine Product Set, Associated RPG, Requests

A Routine Product Set (RPS) is a list of product types and other associated parameters, except time and date, which tells the associated RPG what products to send routinely and repeatedly over the dedicated communication line(s).

See the RPS Edit Screen in Appendix A, for an example of an RPS List. Up to 31 (50 for an RPGOP) separate products may be placed on a Routine Product Set List at one time, however, the dedicated communications line to the RPG will probably limit the amount of data that can be received to fewer than this number every volume scan. If this is the case, these products will be load shed by the RPG. If all are routinely obtained from the RPG, this would mean that a new product would have to be displayed every nine (six for an RPGOP) seconds if all of these products are to be observed within a five-minute volume scan period.

In addition to defining what products are to be routinely requested from the associated RPG, the RPS List is used to define "Auto Display, Graphic" which is a subset of this list (see [Section 4-9: Auto Display, Graphic](#)). Other user distribution and PUES distribution lists are also subsets of this list (see [Section 4-14: Distribution Control of Products](#)). Products selected for automatic archive (when received) are also determined as a subset of this list (see [Archive](#)). One-time requested products may also be automatically archived.

Editing (including creation) of the RPS List (all versions) is described in paragraph [2-4.3 Routine Product Set Editing](#).

Products and their parameters which may be added to the list are described in [Chapter 5](#). Any products, except User Alert Messages and Free Text Messages (including PUP Text Messages), may be placed on a Routine Product Set List.

The Request Frequency parameter which is listed on the RPS list indicates how often the product is to be sent. If it is set to 1, the product is to be sent every volume scan (this is the default). If it is 2, it is to be sent every other volume scan, etc., up to 9 for every ninth volume scan. This also determines the frequency of products available for future time lapse building since a frame obviously cannot be put in a time lapse that is not there.

The Request Priority parameter on the RPS list can be set to H for High, or L for Low. Low is to reduce the product generation priority at the RPG below all the ones marked high (including other PUP's lists with products marked high).

4-6.1 RPS Current List.

There is a currently active Routine Product Set List which is available for viewing and editing via the (R)OUTLINE PRODUCT SET menu. This list is volatile because, whenever the associated RPG sends an Operational (weather) Mode status change to the PUP or when a PUP RESTART is performed, this list will disappear and be replaced with the Adaptation Data RPS List stored for that operational mode, e.g., A, B, etc. For this reason, it is recommended that normal RPS list creation and editing be done with the adaptation data versions (obtained via the (AD)APTATION DATA menu) for the operational modes.

Editing of the currently active RPS List is available for temporary list changes until the operational mode changes. Even if the RPG is disconnected, and then reconnects the dedicated communications line, this temporary list will remain in effect. The alphanumeric command to access the edit screen to view and/or edit this list is described in [Section 4.6.1.1](#).

Manual activation of an operational mode RPS list from adaptation data is also available via the (R)OUTLINE PRODUCT SET menu. The command to perform this is described in [Section 4.6.1.2](#).

The commands which describe the Auto Display rate settings are described in [Section 4-9: Auto Display, Graphic](#), Auto Display, Graphic.

There is an operational (weather) mode associated with this active RPS list which is the mode of the last list invoked manually or automatically from adaptation data (see paragraph [4-6.2 Adaptation Data RPS Lists](#)).

4-6.1.1 Edit Routine Product Set

Selection:

Alphanumeric (only): (R)OUTLINE PRODUCT SET,(E)DIT ROUTINE PRODUCT SET (goes to edit screen following command entry)

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Special

Note: The Routine Product Set Edit Screen, which is entered following the selection of this command, has its own special editing command language (see [2-4.3 Routine Product Set Editing](#)). When it is active, the normal PUP command language is not available until function key F1, RETURN TO MAIN MENU or function key F2, RETURN TO PREVIOUS MENU is depressed. This action will also cause any edited changes to be saved and the new list to be sent to the RPG. To avoid saving the list and sending it to the RPG, select "(C)ANCEL ALL" prior to the F1 or F2 depression.

Operation: This command may be used to simply examine the list without editing. Refer to [Section 4-6: Routine Product Set, Associated RPG, Requests](#) for a description of the RPS list. Each entry on the list has an associated line number (LN), beginning with 1, used for editing purposes. Standard product name mnemonics (1-3 characters) are used in the command to specify the desired product when inserting onto the list.

The only difference the order of products on the list makes is for the auto display list definition display order. All the products specified "L" for the left screen auto display will be displayed in the order they are listed on the list. All the products specified "R" for right screen are to be displayed, in the order listed, on the right screen. A blank should be placed in this column for any product not to be displayed in auto display. The two screen lists are independent regardless of how they are interspersed with each other or blanks. It does not matter if all left screen products are listed before, after, or intermingled with right screen (or no screen) products. The auto display screen assignments may be changed at any time by simply editing the list. This may be done even while auto display is running; however, the new list will not be activated until editing is exited (with function key F1 or F2).

If only one product is assigned to a screen in auto display, the latest version received will be repeatedly displayed once per update period. If no products are assigned to a screen, it will not be altered by auto display.

4-6.1.2 Replace Active RPS List

Selection:

Alphanumeric (only): (R)OUTLINE PRODUCT SET,(RE)PLACE WITH ADAPTATION VER-
SION,<rps-id>

Active

Environment: Always active

Options and

Parameters: <rps-id> This is the single letter (A-J) identifier of the particular adaptation data RPS list which is to replace the current RPS list at the moment this command is executed.

Defaults: If a semicolon is selected in place of <rps-id>, then the list for the most recently reported operational (weather) mode (from the RPG) will be selected, or, after a (RES)TART, list "J" will be active until the RPG reports the mode.

Operation: See [4-6.2 Adaptation Data RPS Lists](#). for a description of the ten adaptation data RPS lists available for selection. These lists can be defined via the (AD)APTATION data menu only.

This command will immediately replace the entire current RPS list with the selected entire adaptation data version list. The format of all the lists is identical and the method of definition and editing is also identical.

When this command is selected, the old current RPS list will be completely eliminated, including any editing which may have been performed on it. If the dedicated communications link to the RPG is connected, this new list will immediately be sent to the RPG. If it is not connected, it will be sent when the line is connected. Until that time, however, the new auto display and product distribution list definitions are effective. If the dedicated link does connect, and the RPG indicates that the operational mode has changed since the last effective mode (selected automatically or manually), this list will be replaced automatically with the weather mode list.

Both real operational (weather) mode adaptation data RPS lists, e.g., A, B, and manually selectable only lists, e.g., F, G, H, may be invoked manually with this command. The actual number of real lists depends on the number of operational (weather) modes which may be activated at the RDA/RPG.

Notes: Once selected, this list becomes the currently active RPS list and is available for editing via the (R)OUTLINE PRODUCT SET,(E)DIT command. This does not alter the adaptation data copy. If the adaptation data copy is then edited (see [4-6.2.1 Edit Adaptation Data Routine Product Set Lists](#).), it will automatically replace the current list only if again invoked via this command, or if the operational (weather) mode changes to that mode.

The current list may be saved in one of the adaptation data lists by replacing the adaptation data list with the current list. See [4-6.2.2 Replace Adaptation Data RPS Lists](#).

4-6.2 Adaptation Data RPS Lists.

There are ten auxiliary adaptation data RPS Lists available for definition and editing. None of these ten lists are active but any may be manually selected to replace the currently active RPS list (see Section 4.6.1) with the single command: "(R)OUTLINE PRODUCT SET, (RE)PLACE WITH ADAPTA-

TION VERSION, <rps-id>" (see paragraph [4-6.1.2 Replace Active RPS List](#)). These lists are designated by operational mode designators A, B, etc. The first several refer to actual RDA/RPG operational modes. The number of these depends on the RDA/RPG. The rest of these lists, up through list J, are available for the convenience of the operator so that customized or personalized lists may be instantly available based on particular weather situations or personal preference. List "I" is reserved for test investigation when the RPG is in Test Investigation Mode although it is available for general use at all other times.

An actual operational mode list will automatically be invoked whenever the RPG indicates that the actual operational mode has changed from the mode of the last active (selected automatically or manually) list.

When new adaptation data is first installed on the PUP disk, the ten RPS lists are normally all blank unless predefined when the data was generated.

Null, or blank, lists may be invoked if no routine products are desired from the RPG or if the current list is to be created from scratch.

There is a command to move adaptation data lists from one to another as well as to save the current RPS list in an adaptation data list (See paragraph [13-1.1 Routine Product Set Lists](#)).

4-6.2.1 Edit Adaptation Data Routine Product Set Lists.

Selection:

Alphanumeric (only): (AD)APTATION DATA, (R)OUTINE PRODUCT SETS, <RPS-ID>, (E)DIT
The Adaptation Data RPS Edit Screen for this RPS-ID is entered at this point.

Active

Environment: Always active except when editing an RPS list.

Options and

Parameters: <RPS-ID> indicates the actual adaptation data RPS list, A through J, to be examined and/or edited. A single letter only should be entered.

Defaults: None available; all portions of the command must be entered even though this is first on the menu.

Operation: Once the adaptation data version RPS list to be examined and/or edited has been specified in the above command, the operation is identical to that described in paragraph [4-6.1.1 Edit Routine Product Set](#). Refer to that section, and all the sections it references, for instructions.

Notes: None of these lists are "active" and, once edited, they do not automatically replace the current RPS list or get sent automatically to the RPG.

4-6.2.2 Replace Adaptation Data RPS Lists.

Selection:

Alphanumeric (only): (AD)APTATION DATA, (R)OUTINE PRODUCT SETS, <RPS-ID>, (RE)PLACE WITH, <RPS-ID> [R FOR CURRENT LIST]

Active

Environment: Always active

Options and

Parameters: The first <RPS-ID> is the single letter identifier (A-J) of the particular adaptation data RPS list which is to be replaced.

The second <RPS-ID> is the single letter identifier (A-J or R) of the particular adaptation data RPS list (A-J) or the current list (R) which is to replace the first adaptation data RPS list specified.

Defaults: None available; all entries must be specified.

Operation: This command, in addition to the replace Active RPS list command described in 4.6.1.2, provides the means to replace any RPS list with any other. In particular, it provides the means to have auxiliary adaptation data operational (weather) mode lists for the actual operational modes, i.e. A and B, stored in the C through J lists and be able to replace the A and B lists at will. In addition, it provides the means to save the current RPS list into any of the adaptation data RPS lists, assuming that editing took place on the current list.

Notes: The list being replaced will be lost unless it was first saved by replacing another list with it.

Section 4-7: Receipt of Unsolicited Products

Unsolicited products are either graphic or alphanumeric products which are received from an RPG (normally the associated RPG) for which no specific request (either by Routine Product Set List entry or one-time request) has been made. These normally consist of such things as Free Text messages sent from the RPG or other products for which no specific request can be tracked. Additionally, products are marked as unsolicited if they are received from a previous RPS list which the PUP has changed. Products marked as unsolicited (with a UNS) do not connote something bad; it simply means the PUP could not track their origin.

The RPG product status lines will indicate when such a product is received. If it is a graphic product, and a graphic screen has been cleared (via the Clear function), then this product will be displayed automatically upon receipt. If this product is an alphanumeric product, and the alphanumeric display is in auto alpha mode, then this product, like any other alphanumeric product received, will be displayed automatically upon receipt.

These products will be placed on the appropriate queue if the above conditions for automatic display are not met and the graphic screen (for graphic products) is not in auto display mode.

Section 4-8: Notification of all Received Products

All products received from any RPG (as well as from optical disk in training mode) are listed on the RPG Product Request Status Lines immediately upon receipt. This includes RPS list requested products, one-time requested products, alert products, unsolicited products and training mode products. Refer to paragraph [8-2.10 RPG Product Request Status Lines](#) for a description of these message formats.

Section 4-9: Auto Display, Graphic

This section consists of the following subsections:

- 4.9.1 Auto Display - Graphic, Start, Resume, Halt
- 4.9.2 Set (Examine) Auto Display Rates (Graphic)
- 4.9.3 Adaptation Data Graphic Auto Display Rates
- 4.9.4 Auto Display - Graphic, Speed Up, Speed Down

Section 4.9.1 describes what the graphic auto display is and does as well as how to define, select, and stop it. Paragraph [4-9.2 Set \(Examine\) Auto Display Rates \(Graphic\)](#), and paragraph [4-9.4 Auto Display - Graphic, Speed Up, Speed Down](#), describe how to change the graphic auto display, display rates for the left and right screens via the alphanumeric terminal (4.9.2) and graphic tablet (4.9.4). Section 4.9.3 describes the various auto display rate settings for each RPS list in adaptation data. When one of these lists replaces the currently active RPS list (see Section 4.6), the auto display rates assigned to the new list replace the auto display rates currently assigned.

4-9.1 Auto Display - Graphic, Start, Resume, Halt.

Selection:

Graphic Tablet:AUTO RES/HALT (Toggle:Resume/Halt)

Alphanumeric: (D)ISPLAY,(AU)TO DISPLAY,(G)RAPHIC
 (Start Auto Display)
 (D)ISPLAY,(H)ALT AUTO DISPLAY GRAPHIC
 (Halt Auto Display)

Active

Environment: Always active except when in graphic edit mode on either graphic screen. Halt is only active when Auto Display is running. Resume is always active when Auto Display is halted except in graphic edit mode.

Options and

Parameters: Resume (graphic tablet)
 Halt (graphic tablet or alphanumeric command)
 Start (alphanumeric command)

Defaults: None

Operation: The graphic Auto Display is separately defined via the alphanumeric Routine Product Set menu and edit screen (Section 4.6). On the menu, the left and right graphic display rates are independently set to the number of seconds each product assigned to that screen is to be displayed (Sections 4.9.2 and 4.9.3). The Routine Product Set edit screen determines which graphic products that are part of the Routine Product Set (and that arrive periodically from the RPG) are to be displayed in Auto Display and on which screen.

When AUTO RES/HLT Auto Display is selected from the graphic tablet (assuming that manual mode is in effect), the display cycle will resume at exactly the point at which it was halted. If the definition of the Display sequence has been edited since it was last halted, the Resume Auto Display will start at the beginning of the sequence defined in the Routine Product Set rather than the point at which it was halted.

When (D)ISPLAY (AU)TO DISPLAY (G)RAPHIC is selected from the alphanumeric terminal, it will cause the Auto Display (Graphic) to restart the sequence at the beginning of the defined auto display list in the Routine Product Set. The first product selected in the list for the left screen and the first product selected for the right screen will be displayed simultaneously at the beginning of the sequence. From that point the sequences on each screen are independent of each other, as defined by the display rate per screen and the products on the list for Auto Display per screen. The order of products displayed is the same as in the list. The order may be altered by changing the order in the list, which will have no other effect on system operation. Products may be "paired", i.e., displayed simultaneously in Auto Display; however, it is up to the operator to make sure display rates for the two screens and the number and order of products are correct for the desired pairing to take place.

The auto displays of the two screens run off of timers, and whereas only one screen can, literally, be drawn at a time, this will only momentarily interrupt the auto display cycle if both screens are scheduled to be updated simultaneously. This fact does not affect the overall schedule of screen updating, i.e., the delays are not additive and do not affect the next scheduled display update.

Halt Auto Display (D)ISPLAY (H)ALT AUTO DISPLAY will stop the Auto Display sequence from continuing, and remember at what point it left off for the Resume function. Whenever a product in Auto Display is manually manipulated (i.e., recentered, linked/unlinked, magnified, filtered, combined, changed to gray scale or had maps or overlays altered), this action will also automatically halt Auto Display so the product may be studied for as long as desired without Auto Display replacing it.

Auto Display always displays the most recently received version of each product on the list. If no data for a product type on the list is in the PUP data base, the product portion of the screen will display the "Pick-A-Product" screen, and the product identification, during the time that product would normally be displayed. This could be the case on PUP startup, when the operational (weather) mode changes or when the RPG is not sending the requested product for some reason.

The graphic product queue will be cleared (products remain accessible by direct selection) when Start or Resume Auto Display is selected. No products will be placed on the queue when Auto Display is active.

There are four situations that will automatically halt graphic Auto Display:

- a. A manual request for a graphic screen
- b. An automatic NEXRAD Unit Status Display (Section 8.1.1)
- c. A product arrives from a one-time graphic product request (Section 4.5)
- d. A weather alert (Sections 8.3.1 and 13.1.2).

Selecting Auto RES/HLT will cause a resume, not restart from the top of the list.

Notes: When the operational (weather) mode changes at the RDA and RPG, the PUP is notified. At that time the adaptation data version of the Routine Product Set List for the new operational (weather) mode will replace the one then in use. Since the Auto Display list is a subset of the Routine Product Set List, this implies that the Auto Display

list and display rates will change automatically to those defined for that operational (weather) mode in adaptation data. The current list may be edited, or the adaptation data default lists may be edited. If the adaptation data list is edited, it will not automatically replace the current use list; however, this can be accomplished with a single command from the alphanumeric terminal (R)OUTLINE PRODUCT SET menu. When the list is replaced, Auto Display sequencing will continue to run; however, it will restart automatically at the beginning of the new list. If new products are on the list, they may not be available for display right away.

Graphic Auto Display is most useful during non-severe weather conditions when the operator may be engaged in some other activity and can occasionally glance at the screens to see if anything is developing.

An alternative to graphic Auto Display is to preprogram a User Defined Function to display a predetermined sequence of products on both screens with predetermined time delays (WAITs) between each display. This would be useful for a faster sequential review, on demand, of a set of products without having to select them individually each time or wait for them to appear on the Auto Display. Refer to Section 11 for details regarding User Defined Functions.

4-9.2 Set (Examine) Auto Display Rates (Graphic).

Selection:

Alphanumeric (only): (R)OUTLINE PRODUCT SET,(L)EFT AUTO
DISPLAY RATE*,<SECONDS>
-or-
(R)OUTLINE PRODUCT SET,(R)IGHT AUTO
DISPLAY RATE*,<SECONDS>

* If command entry stops at this point, the current auto display rate (in seconds) for the selected screen will be displayed on the feedback line below the command. The command will remain on the command line for entry of a new rate.

Active

Environment: Always active (whether auto display is currently running or not, or whether there are any products currently assigned or available).

Options and

Parameters: (L)EFT graphic screen, or (R)IGHT graphic screen <SECONDS> = the rate between 10 and 360 in integer seconds for each screen display rate

Defaults: None

Operation: This is the method to directly set the graphic auto display screen dwell times per product listed for that screen. The minimum allowable is ten seconds. The maximum allowable is 360 seconds (six minutes) divided by the number of products assigned to that screen currently on the Routine Product Set List. If the number of products on the list is increased, this time may be automatically reduced to meet these criteria. For further description, refer to Section 4.9.4 which describes the method for changing these times via the graphic tablet.

Notes: These commands may also be used for display rate examination only.

See the Notes paragraph of Section 4.9.4 which also applies.

4-9.3 Adaptation Data Graphic Auto Display Rates.

Selection:

Alphanumeric (only): (AD)APTATION DATA,(R)OUTLINE PRODUCT
SETS,<RPS-ID>,(L)EFT DISPLAY RATE*, <SECONDS>
-or-

(AD)APTATION DATA,(R)OUTLINE PRODUCT
SETS,<RPS-ID>,(R)IGHT DISPLAY RATE*, <SECONDS>

* If command entry stops at this point, the current auto display rate (in seconds) for the selected screen will be displayed on the feedback line below the command. The command will remain on the command line for entry of a new rate.

All the instructions in Section 4.9.2 which describe examination and setting of the auto display rates for the currently active RPS List apply here. The only difference is that <RPS-ID> is also specified here which identifies for which adaptation data Routine Product Set List (A through J) the auto display rates are being defined. Paragraph [4-6.2 Adaptation Data RPS Lists](#), describes these lists. The rates specified here will automatically be invoked when the list is invoked as the current RPS list.

4-9.4 Auto Display - Graphic, Speed Up, Speed Down.

Selection:

Graphic Tablet (only): SPEED UP
SPEED DOWN

Note: These are the same function selections used for Time Lapse speed up and down. Their use depends on which mode is active.

Active

Environment: Active only when Auto Display - Graphic mode is in effect.

Options and

Parameters: Speed up or speed down
Screen (left or right)

Defaults: None

Operation: These functions will alter the Auto Display - Graphic Display rate on the selected screen. For each selection of SPEED UP, the display rate will be increased (shorter display duration) on the selected screen. For each selection of SPEED DOWN, the display rate will be decreased (longer display duration) on the selected screen. The increment of the display rate alteration per selection of each function is one second, between ten seconds and twenty seconds, and five seconds, between twenty seconds and 360 seconds. Ten seconds and 360 seconds (six minutes) are the minimum and maximum display duration times per product, per screen.

Notes: Each selection will alter the display rate for one screen only, as the two screen rates are independent of each other.

When activated, the initial display rate of Auto Display will be whatever was last set (unless the weather operational mode has changed).

When the currently active RPS list is replaced from adaptation data, the new display

rate will change to that of the new list.

The display rates for each screen are always indicated on a status line, independently for each graphic screen, when Auto Display is active. These display rate indicators will be updated when the Speed Up and Speed Down functions are selected.

The display rates may also be directly set via alphanumeric commands:
(R)OUTLINE PRODUCT SET,(L)EFT AUTO DISPLAY RATE, seconds
(R)OUTLINE PRODUCT SET,(R)IGHT AUTO DISPLAY RATE, seconds

The maximum display rate per product allowed by the PUP will be 360 seconds divided by number of products assigned to that screen, ensuring that all products on the list may be displayed at least once per volume scan.

Section 4-10: Auto Display, Alphanumeric (Auto Alpha Mode)

A description of what Auto Display, Alphanumeric is, what it does, how to start it, and how to stop it, is provided in Section 4.10.1.

Note, that when it is selected, the product/menu portion of the alphanumeric display will be cleared of all displayed characters. When it is selected, the Received Alphanumeric Product queue will be cleared and no longer available until auto alpha mode is halted.

4-10.1 Auto Display - Alphanumeric, Start, Halt.

Selection:

Alphanumeric (only): (D)ISPLAY,(AU)TO DISPLAY,(A)LPHANUMERIC (start)
 Alphanumeric Function Key #8 = Start
 Auto Alpha
 Alphanumeric Function Key #9 = Halt Auto
 Alpha

Active

Environment: Start Auto Display - Alphanumeric (function key or command) is always active unless the alphanumeric terminal is already in this mode. Halt Auto Display - Alphanumeric (function key) is only active when it is in the Auto Display - Alphanumeric mode.

Options and

Parameters: None

Defaults: None

Operation: Auto Display - Alphanumeric (Auto Alpha) does not operate the same way as Auto Display - Graphic. Graphic products are more numerous and it is generally determined ahead of time which ones will be arriving. Alphanumeric products are less frequent, and arrive on a less periodic and predictable basis than graphic products. For this reason, the Auto Display - Alphanumeric function will put the alphanumeric terminal in a mode where any alphanumeric product (those displayable on the alphanumeric terminal) will be displayed immediately upon receipt from the RPG. When entering this mode, any menu or other alphanumeric display on the screen will be cleared and an alphanumeric status message will indicate that the auto alpha mode is active. The menu/alpha product display portion of the screen will remain cleared until the first alphanumeric product arrives from the RPG, when it will automatically be displayed. The product will remain on the screen until the next alphanumeric product arrives and is automatically displayed. This action will continue until auto alpha is halted via function key 9, a menu is selected via function key or command, or another alphanumeric product or display screen is selected via command. Any such display selection will automatically stop auto alpha and replace the last product displayed with the selected display. All alphanumeric commands are active during auto alpha mode. If the command is entered to completion, and is such that it will not request a menu or edit screen or another alphanumeric display, then it will be executed without stopping auto alpha or altering the alpha product display area.

Halt Auto Display - Alphanumeric (function key 9 selection on alphanumeric) will cause the alphanumeric product area to freeze and not display any new alphanumeric products. This would normally be used when a lengthy product or message is displayed and it is desired to prevent a new one from replacing it

before the operator is finished using it.

While auto alpha is not active, any alphanumeric product which arrives from the RPG will be entered into the Alphanumeric Product queue. Each product is entered onto the top of the queue and the others pushed down, with the oldest product (assuming the queue is full) removed. Products can be displayed from either end of the queue via the Redisplay Last Alpha Product and Display Queued Alpha Product function keys. However, only the latter will actually remove the product from the queue.

When Auto Display - Alphanumeric is selected, the alpha product queue will be cleared. All products which were on it, of course, are still filed in the data base, and accessible for display with the (D)ISPLAY command. While auto alpha is active, no more products will be entered on the queue since they are automatically displayed.

Notes: Feedback messages and status messages are still displayed normally on the alphanumeric display while in auto alpha mode.

Section 4-11: Received Product Queue, Graphic

A description of the Received Graphic Product Queue is included, along with a description of how to display products off of it, in Section 4.11.1, Display Next Queued Graphic Product.

The ability to delete products from the queue without displaying them is described in Sections 4.11.2, Acknowledge Graphic Product and 4.11.3, Clear Queue - Graphic.

4-11.1 Display Next Queued Graphic Product.

Selection:

Graphic Tablet: DISPLAY QUEUED PRODUCT
Alphanumeric: (D)ISPLAY,(N)EXT QUEUED,(G)RAPHIC,<SCREEN>

Active

Environment: Active when in manual display mode (Auto Display - Graphic not cycling) and one or more graphic products have arrived from an RPG and are listed on the Graphic Product queue.

Options and

Parameters: Screen (left or right) for display

Defaults: The oldest product remaining on the Graphic Product queue will be displayed with this function.

Operation: When a graphic product is received from an RPG and is not automatically displayed by having auto display cycling or a graphic screen cleared, then it will be placed at the top of the Graphic Product queue. As new products arrive, they are placed at the top of the queue and the products already on the queue are pushed down. When the queue is full and a new product is added, the oldest product name will be automatically deleted from the queue (though the product is still accessible by direct request). The Graphic Product queue is currently set at 15 products in length.

The oldest product remaining on the queue is the one which will be displayed, via this function, onto the selected screen. When it is displayed, its name is deleted from the queue and the next oldest product on the queue becomes the one displayed the next time this function is selected. Once a product is removed from the queue it cannot be put back on the queue. It is still accessible for display, however, by normal product request.

The identification of the next queued (oldest on the queue) graphic product is listed in the status display area of both graphic screens on the "Product Queue Status" line (see paragraph [8-2.8 Graphic Product Queue Indicator](#)). If the queue is empty (cleared), this status line will indicate that as well.

Notes: When a product listed on the queue is displayed by any other means (e.g., DISPLAY PRODUCT function) than via this function, it will not be removed from the queue because of that selection.

Unless the screen is in parameter selection mode or edit mode, the DISPLAY PRODUCT graphic tablet function will display the latest graphic product arrived, which may be on the queue. This action will not remove it from the queue.

If desired, the operator may simply ignore the product queue, letting new products be

added and older products automatically deleted, without any ill effects whatsoever. The queue may be used as frequently or infrequently as desired.

The queue can be cleared in one of three ways: (1) by the CLEAR QUEUE-GRAPHIC function on the tablet, (2) by using (D)ISPLAY (N)EXT QUEUED, (G)RAPHIC, <SCREEN>, or the ACK PRODUCT function, repeatedly, to delete all products from the queue, or (3) by selecting the Auto Display - Graphic function which clears the graphic queue before it displays products.

No products are added to the queue when Auto Display - Graphic is cycling. If Auto Display - Graphic is cycling when a one-time request product arrives from the RPG, it will be automatically displayed and not placed on the queue. This will halt the auto display.

The ACKNOWLEDGE PRODUCT - Graphic function will, like this function, delete a product from the queue, but without displaying it.

If the operator leaves a graphic screen cleared after making a one-time graphic product request, that product, when it arrives, will be automatically displayed on the cleared screen and not added to the queue.

4-11.2 Acknowledge Graphic Product.

Selection:

Graphic Tablet (only): ACK PRODUCT

Active

Environment: Active whenever one or more products are contained on the Graphic Product queue.

Options and

Parameters: None (screen independent - either screen button may be used)

Defaults: None

Operation: This function will remove the name of the oldest product on the graphic product queue (the Next Queued Graphic Product) without displaying it. When this is done, the next oldest product on the queue becomes the Next Queued Graphic Product whose name is listed on the "Product Queue Status" line of both graphic screens. This function selection may be repeated as many times as desired until the queue is empty. Even though this function removes the product from the queue, the products are not deleted from the data base and are still displayable by normal display selection methods. (See paragraph [4-1.1 Display a Specific Product - Graphic](#) for a description of the Graphic Product queue itself.)

Notes: This function may be used to search the queue for a specific product, displaying only the names, not the data, of those being deleted from the queue. Its operation is slightly faster than Display Next Queued Graphic Product because the product is not displayed.

If it is desired to clear the entire queue, without reviewing its contents, then the CLEAR QUEUE - Graphic function is used.

4-11.3 Clear Queue - Graphic.

Selection:

Graphic Tablet: CLEAR QUEUE
Alphanumeric: (D)ISPLAY,(C)LEAR QUEUE,(G)RAPHIC

Active

Environment: Active whenever one or more products are contained on the Graphic Product queue.

Options and

Parameters: None (screen independent - either screen button may be used)

Defaults: None

Operation: This function will clear the graphic product queue of all graphic products listed on the queue. (See paragraph [4-11.1 Display Next Queued Graphic Product](#). for a description of the queue itself.) Although the queue is cleared, all products removed are still available for display by normal product display selection methods until they are overwritten in the data base.

When in manual mode (not auto display), subsequent to being cleared, the queue may begin to fill up again as new products arrive.

When the queue is cleared, via this or other means, that status is indicated on the Product Queue Status line of both graphic screens, where the next queued product is normally listed.

Notes: Prior to leaving the PUP unattended for a period of time, this function can be used to have queued just those products which arrive during that period.

Section 4-12: Received Product Queue, Alphanumeric

The Alphanumeric Product queue works similarly to the Graphic Product queue (see [Section 4-11: Received Product Queue, Graphic](#)). Whenever the alphanumeric terminal is not in auto alpha mode (see [Section 4-10: Auto Display, Alphanumeric \(Auto Alpha Mode\)](#)), any alphanumeric product (displayable on the alphanumeric terminal) which is received from an RPG (or optical disk in training mode), will be placed on this queue. This includes the alphanumeric portion of "paired" products (see [Section 4-3: Paired Alphanumeric Product Display](#)).

The alphanumeric queue holds a maximum of ten products. Beyond that point the latest ten products received will always be on the queue until products are removed by display of the oldest ([paragraph 4-12.1 Display Queued Alpha Product.](#)), removal from the queue of the oldest without display ([paragraph 4-12.2 Acknowledge Alpha Product.](#)), or clearing of the entire queue by selecting auto alpha mode ([Section 4.10](#)) or entering the command: (D)ISPLAY,(C)LEAR QUEUE,(A)LPHANUMERIC.

The Alphanumeric Product Queue Indicator line (see [paragraph 8-2.11 Alphanumeric Product Queue Indicator.](#)) lists the letter "Q" followed by the number of products (1-10) contained on the queue followed by a very brief description of the oldest product on the queue.

This is the one displayable with the DISPLAY QUEUED ALPHA PRODUCT function key (F14). "QUEUE EMPTY" is listed if the queue is empty.

4-12.1 Display Queued Alpha Product.

Selection:

Alphanumeric (only): Function Key 14, DISPLAY QUEUED ALPHA PRODUCT
-or-
(D)ISPLAY,(N)EXT QUEUED,(A)LPHANUMERIC

Active

Environment: Active whenever there are one or more products on the Alphanumeric Product queue.

Options and

Parameters: None

Defaults: None

Operation: Selection of this function key or command will display, in the alphanumeric product display area, the product listed on the queue line. This is the oldest product on the queue.

Once displayed, the queue indicator will list the next oldest product on the queue and the number of products on the queue will be reduced by one. This will make space for another received alphanumeric product to be added to the queue without automatic deletion of the oldest.

Notes: After products are removed from the queue, as well as before, they are displayable via normal (D)ISPLAY requests (see [Section 4-2: Display Alphanumeric Products \(by Parameters\)](#)). Displaying a product on the queue by this means will not remove it from the queue.

4-12.2 Acknowledge Alpha Product.

Selection:

Alphanumeric (only): Function Key 15, ACKNOWLEDGE
 ALPHANUMERIC PRODUCT

Active

Environment: Active whenever there are one or more products on the Alphanumeric Product queue.

Options and

Parameters: None

Defaults: None

Operation: Selection of this function key will remove, without displaying it, the oldest product on the Alphanumeric Product queue. All other discussion about displaying the queued alphanumeric product (paragraph [4-12.1 Display Queued Alpha Product.](#)) applies.

Section 4-13: Product Display Functions, Graphic and Alphanumeric

The graphic display functions described in this section are as follows:

4-13.1 Product Forward.

4-13.2 Product Back.

4-13.3 Transfer Screen Product.

4-13.4 Redisplay Last Product.

4-13.5 Product Off/On.

4-13.6 All Quadrants.

The alphanumeric display functions described in this section are as follows:

4-13.7 Redisplay Last Alpha Product.

4-13.8 Display Latest Received Alpha Product.

4-13.1 **Product Forward.**

Selection:

Graphic Tablet (only): PRODUCT FORWARD

Active

Environment: Active whenever a graphic product is displayed on the selected graphic screen and it is not in edit mode nor time lapse mode.

Options and

Parameters: Screen (left or right)
Product Type (currently displayed)
RPG (currently displayed)
Slice (currently displayed)
Center Azimuth (currently displayed)
Center Range (currently displayed)
End Hour (currently displayed)

Defaults: Product Type, RPG, Slice (elevation, layer, duration or altitude), end hour, center azimuth, and center range parameters are defaulted to be the same as those currently displayed on the selected screen. The time/date of the new product display will be the next newer found, regardless of the time gap.

Operation: This function will take the product type, RPG, Slice (elevation, duration, layer or altitude), end hour, center azimuth, and center range product parameters for the product currently displayed on the selected screen, and search the data base for the next newer product with those same parameters. If the new product is available, it is displayed. If not available, the screen "Pick-A-Product" screen will be displayed and the product identifying parameters for the last product displayed will be displayed.

This function operates identically to PRODUCT BACK except that the direction in time is the opposite.

The displayed product will retain the display manipulations of the previously displayed product, e.g. display center, magnification, filter and combine levels.

Notes: If a new product is not displayed with this function, indicating that no more products are immediately available, then PRODUCT BACK or REDISPLAY LAST PRODUCT can be used to restore the last display.

This function (as well as the PRODUCT BACK function) can be used to display a PUP calculated linear motion estimate for a selected echo feature. The linear motion display looks similar to the Storm Track overlay but with different labeling. To produce this linear motion estimate using the PRODUCT FORWARD function follow these steps:

1. Display a product from one or more volume scans ago, place the cursor on the echo feature of interest, and press the appropriate puck button. This defines the "past location".
2. Select PRODUCT FORWARD one or more times to display a more recent version of the product.
3. Use the puck to reselect the same echo feature. This defines the "current location".

The PUP will then display a linear motion estimate overlay based on the two selected cursor positions. The display indicates the "past location" with the letter P, the "current location" with the letter C, and four estimated future locations in 15 minute intervals. The future locations are labeled with their appropriate clock time. This linear motion overlay is automatically saved as an annotation on the product used to define the current location. Subsequent linear motion estimate overlays created using the same product will be added to the annotations for that product. If any other function is selected after the PRODUCT FORWARD selection(s) then the linear motion estimate will not be displayed. If PRODUCT FORWARD is selected too many times so that the pick-a-product screen is displayed, the PRODUCT BACK function can be used to return to the last product displayed. This will allow a linear motion estimate to be made if a cursor position is selected next.

One factor could have a significant effect on the linear motion estimate. That is the time interval of the two products used for selection of the past and current locations. Assuming the feature has true linear motion, the smaller the time interval between the two products, the greater the error is likely to be when it is extrapolated out to a 60 minute future position. Therefore, whenever possible, use a greater interval between products by selecting PRODUCT FORWARD more than just once.

The estimated future locations are defined to be at the upper left corner of the clock time labels. It is suggested that this linear motion estimate feature be used at higher magnification levels. This is to ensure a more accurate estimate and to avoid the clock time labels from overwriting one another, particularly with slow moving storms. However, because the linear motion estimate is automatically saved as an annotation to the product, it is easy to improve the readability of a linear motion estimate made at a lower magnification by simply magnifying the product and displaying the annotations.

4-13.2 Product Back.

Selection:

Graphic Tablet (only): PRODUCT BACK

Active

Environment: Active whenever a graphic product is displayed on the selected graphic screen and it is not in edit mode nor time lapse mode.

Options and

Parameters: Screen (left or right)
Product Type (currently displayed)
RPG (currently displayed)
Slice (currently displayed)
Center Azimuth (currently displayed)
Center Range (currently displayed)
End Hour (currently displayed)

Defaults: Product Type, RPG, Slice (elevation, duration, layer or altitude), end hour, center azimuth, and center range parameters are defaulted to be the same as those currently displayed. The time/date of the new product display will be the next oldest found, regardless of the time gap.

Operation: This function will take the product type, RPG, Slice, end hour, center azimuth, and center range product parameters for the product currently displayed on the selected screen, and search the data base for the next older product with those same parameters. If the new product is available, it is displayed. If not, the "Pick-A-Product" screen will be displayed, and the product identifying parameters for the last product displayed will be displayed.

The displayed product will retain the display manipulations of the previously displayed product, e.g., display center, magnification, filter and combine levels.

Notes: This function is the quickest way to retrieve the previous volume scan version of a product.

This function may be used, in conjunction with PRODUCT FORWARD, to examine weather developments over a period of time.

If there is no previous product and this function causes the "Pick-A-Product" menu to be displayed, either PRODUCT FORWARD or REDISPLAY LAST PRODUCT can be used to restore the previous display.

This function (as well as the PRODUCT FORWARD function) can be used to display a PUP calculated linear motion estimate for a selected echo feature. The linear motion display looks similar to the Storm Track overlay with the absence of a storm ID. To produce this linear motion estimate using the PRODUCT BACK function follow these steps:

1. Display a product from the current volume scan, place the cursor on the echo feature of interest, and press the appropriate puck button. This defines the "current location".
2. Select PRODUCT BACK one or more times to display an older version of the prod-

uct.

3. Use the puck to reselect the same echo feature. This defines the "past location".

The PUP will then display a linear motion estimate overlay based on the two selected cursor positions. The display indicates the past location with the letter P, the current location with the letter C, and four estimated future locations in 15 minute intervals. The future locations are labeled with their appropriate clock time. This linear motion overlay is automatically saved as an annotation on the product used to define the initial location. Subsequent linear motion estimate overlays created using the same product will be added to the annotations for that product. If any other function is selected after the PRODUCT BACK selection(s) then the linear motion estimate will not be displayed. If PRODUCT BACK is selected too many times so that the pick-a-product screen is displayed, the PRODUCT FORWARD function can be used to return to the last product displayed. This will allow a linear motion estimate to be made if a cursor position is selected next.

One factor could have a significant effect on the linear motion estimate. That is the time interval of the two products used for selection of the past and current locations. Assuming the feature has true linear motion, the smaller the time interval between the two products, the greater the error is likely to be when it is extrapolated out to a 60 minute future position. Therefore, whenever possible, use a greater interval between products by selecting PRODUCT BACK more than just once.

The estimated future locations are defined to be at the upper left corner of the clock time labels. It is suggested that this linear motion estimate feature be used at higher magnification levels. This is to ensure a more accurate estimate and to avoid the clock time labels from overwriting one another, particularly with slow moving storms. However, because the linear motion estimate is automatically saved as an annotation to the product, it is easy to improve the readability of a linear motion estimate made at a lower magnification by simply magnifying the product and displaying the annotations.

4-13.3 Transfer Screen Product.

Selection:

Graphic Tablet (only): TRANSFER SCREEN PRODUCT

Active

Environment: Active whenever there is a non-time lapse product currently displayed on the graphic screen OTHER (donor) than the one currently being selected (recipient). The product on the other (donor) screen may currently be turned off or completely recentered off the screen and the function will still work.

Options and

Parameters: Screen (left or right)
The product to be transferred (currently on the other graphic screen or selected quadrant of the other screen)

Defaults: None

Operation: This function will display onto the currently selected graphic screen the same product that is currently displayed on the other (donor) graphic screen (the screen NOT being selected). The product will be displayed without any screen manipulations, such as magnification, filtering, etc., which may be currently in effect on the other screen.

This function will not affect the other screen in any way.

This function will have no effect on the selected screen if there is no product on the other screen, or if the other screen is displaying a time lapse, either running or stopped.

If the other (donor) screen is in quarter screen mode at the time of selection, the product retrieved will be that in the last selected quadrant on the other screen. If there is no product in that quadrant, then this function will have no effect.

If the selected screen (for this function) is in quarter screen mode at the time of selection, the retrieved product will be placed in the last selected quadrant.

Notes: This function may be used to rearrange products on a quarter screen display by transferring them to the other screen and then back again into a different quadrant.

The primary use of this function is to place the same product on both screens so that one of them may be altered, in some way, while retaining the original for reference. It is particularly useful if one screen is then magnified and the other is used as a source for choosing new magnification center coordinates (which may no longer exist on the magnified version). It would also be useful if PRODUCT BACK or PRODUCT FORWARD was selected on one of the identical displays to compare the same product from two adjacent volume scans or, in quarter screen mode, up to eight adjacent volume scans.

4-13.4 Redisplay Last Product.

Selection:

Graphic Tablet (only): REDISPLAY LAST PRODUCT

Active

Environment: Always active except on startup, when no product was previously displayed on the selected screen, or in graphic edit mode.

Options and

Parameters: Screen (left or right)

Defaults: The product will be displayed in default display state (1x magnification, preset center, default background maps, default overlays, etc.) regardless of its last display state.

Operation: Excluding time lapse displays, this function will redisplay the product which was previously displayed on the selected screen. For time lapse, it will redisplay the product displayed before time lapse was started. If no product is currently displayed (blank screen or test pattern), the last product which was displayed will be redisplayed. If there currently is a product displayed when this function is selected, the product which was most recently displayed prior to the current one will be redisplayed, if it is still available. If in time lapse display, the product before the time lapse will be displayed.

In quarter screen mode, this function will remember the product last displayed in each quadrant (per screen), and displays it in the quarter screen it was previously displayed. Also in full screen mode, the software will remember the product last displayed in full screen.

Notes: This function is useful, for example, to restore the previous product display after one or more test patterns have been displayed.

This function is also useful to restore the product last displayed, for further analysis, after a new product is requested from the RPG via the graphic tablet, which has cleared the display.

If the same identical product has just been selected for display twice (not including screen manipulations like magnify), then that same product was the previously displayed product.

This function can also be used to place the same product in multiple quadrants of a quarter screen display, by selecting the quadrants prior to the selections of this function. PRODUCT FORWARD, PRODUCT BACK, or screen manipulations may then be applied selectively to the quadrants.

4-13.5 Product Off/On.

Selection:

Graphic Tablet (only): PRODUCT OFF/ON (toggle)

Active

Environment: Active whenever a product is displayed on the selected graphic screen.

Options and

Parameters: Screen (left or right)
The toggle state of the function

Defaults: The opposite of the current product state.

Operation: Products will always default to "on" whenever they are drawn or redrawn on the screen. This includes initial product display, recenter, magnify, or restore displayed product.

This function will change the colors of the main product on the selected screen to transparent. The product data will disappear and any background map data previously obscured by the product will appear.

This is a toggle function which will alternate between "product on" and "product off" with each subsequent selection. When selected, the new state of this function will be indicated as a feedback message on the selected screen.

The state of this function will always revert to "on" whenever the product data defaults to "on" as it does whenever product data is redrawn in the graphic memory.

Notes: In quarter screen mode this function will operate on the currently selected quadrant. If another quadrant is selected, the state of this function will be remembered for a previously selected quadrant.

The state of this function will be remembered throughout a time lapse loop unless a display resolution change is required when the display rate is altered through one second per frame.

4-13.6 All Quadrants.

Selection:

Graphic Tablet (only): ALL QUADRANTS

Active

Environment: Always active in quarter screen mode, not functional in full screen mode.

Options and

Parameters: Screen (left or right)

Defaults: None.

Operation: This function is provided to enable a single function to be performed simultaneously in all quadrants.

The selection of this function must occur before the selection of any product, map or overlay manipulation. When a four panel display is active, the ALL QUADRANTS can be selected followed by the desired function (i.e. MAPS ERASE) causing all four quadrants to be affected.

After execution of this function, the previously active quadrant will remain active and subsequent commands will affect that quadrant only unless the ALL QUADRANTS function is selected again.

Notes: This function will be active for many product, map and overlay manipulation selections and will affect all quadrants of a four panel display. The OVERLAYS OFF/ON and STOP BLINK functions always affect the entire screen.

4-13.7 Redisplay Last Alpha Product.

Selection:

Alphanumeric (only): Function Key 12, REDISPLAY LAST ALPHA PRODUCT

Active

Environment: Active as long as the last alphanumeric product to appear previously on the alphanumeric screen is still in the PUP data base. Not active during edit screen operations.

Options and

Parameters: None

Defaults: None

Operation: The last alphanumeric product, not including the current one if there is one, to have actually appeared on the alphanumeric product area display will be redisplayed via this function, assuming it is still available.

If there is currently a product on the display when this function is selected, then this product and the last one may be alternately displayed by successive selection of this function. This is available even if many menus, and/or help screens have intervened since the last product display.

4-13.8 Display Latest Received Alpha Product.

Selection:

Alphanumeric (only): Function Key 13, DISPLAY LATEST RECEIVED ALPHA PRODUCT

Active

Environment: Active as long as the latest received alpha product is still in the data base. Not active during edit screen operations.

Options and

Parameters: None

Defaults: None

Operation: The last alphanumeric product received from an RPG can be displayed via this function. Multiple selections of this function during a period when no new alphanumeric products are received will simply display the same product over and over. If the product is on the queue, it will not be removed from the queue by this selection.

This is most useful when not in auto alpha mode since this product will already be on the display in that mode.

Notes: The graphic counterpart to this function is DISPLAY PRODUCT when not in parameter select mode, on the graphic tablet.

Section 4-14: Distribution Control of Products

Product distribution control from a PUP to PUES and Other Users works as follows. Products available for distribution to both PUES and Other Users must be on the current RPS List. There is one column marked "PUES DIST" and one marked "OTH USR." Only products on the list which have a "Y" (for Yes) under the respective heading will be included in the set of products sent to that user type. The way these products are distributed to PUES is somewhat different from Other User distribution.

4-14.1 PUES Distribution.

Products sent to PUES are in a different data format from that used at the PUP and, therefore, a conversion process takes place in the PUP. PUES have a dedicated communication line to a PUP (one which is always connected).

Whenever a product on the current RPS list is received from the dedicated RPG, a check is made to see if it is marked for PUES distribution on that list. If it is, it is passed on the PUES as soon as possible. Since the line to PUES may not handle as much data as the RPG line, this means that not as many products can be sent to PUES as can be received from the RPG. This restriction applies if a heavy load of products is being received, probably a number in excess of ten or fifteen.

If products are being received faster than they can be sent to PUES, they will be queued. If the number of products available for transmission exceeds the size of the queue, the extra products will be "load shed," i.e., not sent.

4-14.2 Other User Distribution.

Other User data formats are the same as those used by the PUP and, therefore, no conversion process is performed. Other Users have up to four dial-up communication lines available for PUP requests. This means that up to four Other Users at a time can receive products from a PUP. If a line is free and an Other User connects to it, the latest stored version of each product marked "Y" under "OTH USR" on the current RPS list is what is sent, based on the distribution mode selected. There are three distribution modes available to other users and they are PUP operator selected from the extended adaptation data menu's Narrowband Line Definitions Edit Screen. The mode set is the mode used until the PUP operator changes it. Other users are notified of the mode in effect upon connection of the line. The three distribution modes to other users are as follows: Distribution mode 1 means that, upon dial-in line connection, the latest version of each product marked "Y" under the other user column on the current RPS list is sent once, then the line is disconnected. Distribution mode 2 means that, upon dial-in line connection and successful sign-on, the Other User will be transmitted any products present on the current RPS list and marked "Y" under the Other User column as soon as possible. If products are being received faster than they can be sent to the Other User, they will get placed on a queue. If the number of products available for transmission exceeds the queue size, the oldest products on the queue will be "load shed" and not transmitted. This process repeats continuously until the time specified under "MAX CONNECT MINUTES" on the Dial-in Port Control Edit Screen is reached, at which time the PUP disconnects the Other User communications line, upon the complete transmission of an entire product. An exception to disconnecting at that time (Distribution mode 2) is if the "DISCONNECT OVERRIDE PRIVILEGES" on the "Other User List Edit Screen" (also from the Extended Adaptation Data Menu) are set to Y (for Yes) for the particular Other User calling in and the Other User selects this override option. A privileged Other User may enable this disconnect override feature by setting the "Disconnect Override Flag" in the sign-on message following line connection, in which case the distribution process will repeat continuously for 24 hours, or until the Other User hangs up, whichever occurs first. Distribution mode 3 means that the list of products specified by "Y" in the other user column of the RPS list are available for one-time requests by the other user during the connection time. Only those products requested are sent. After the "MAX CONNECT MINUTES", the PUP hangs up, unless override privileges are specified as for distribution mode 2. Additionally, the PUP will terminate communications with the Other User follow-

ing the third one-time request for a product not on the availability list.

Section 4-15: Deletion of Products in Data Base

The alphanumeric command (S)TATUS,(T)YPES OF PRODUCTS AVAILABLE IN PUP DATABASE will produce a list of all product categories (by product ID number) available currently in the data base.

The command (S)TATUS,(P)RODUCTS IN PUP DATABASE,<prod-id#> will list all the individual products for one product ID number, starting with the latest volume scan time, contained currently in the PUP data base.

Whenever such a list is currently on the screen, a single product at a time on that list (though the correct page need not be displayed) may be deleted from the data base. This may be desirable in order to delete products prior to producing a permanent archive or to remove them prior to producing a time lapse sequence, or simply because the data is bad for some reason and might possibly cause the graphic system to "hang".

Section 4.15.1 describes the command to perform single product deletion.

Section 4.15.2 describes the command to delete all products from the data base. This would normally only be done prior to the reading in of a product archive optical disk (via the Archive, Read command or else in Training mode) to avoid the mixing of products from different times or locations within the same data base. It may also be needed in the event of a corruption of the product data base index pointer tables. Refer to appendix H, item 4, for details.

4-15.1 Delete a Single Product from Data Base.

Selection:

Alphanumeric (only): (S)TATUS,(P)RODUCTS IN PUP
DATABASE,(DEL)ETE,<LINE#>

Active

Environment: Active ONLY while a list of products is on the display (produced by the (S)TATUS,(P)RODUCTS,<prod-id#> command). If the status menu is displayed to look up this command, it will not be active again until the list is redisplayed.

Options and

Parameters: <LINE#> is the numeric (one- to three-digit) line number indicated under the heading "LINE" on the left side of the product list.

Defaults: None

Operation: With this command, the product listed to the right of the selected line will be deleted from the data base. The data is not physically removed from the disk but, rather, the product is marked "inactive" and becomes unavailable. Even though products may be deleted, the currently displayed list will not change until it is redisplayed with the "S,P,<prod-id#>" command.

Products may be deleted from any page on the list even if that page is not currently displayed.

Notes:

Refer to [Section 4-4: Display Products From Product Lists](#) for other tips since that operation works in a very similar manner.

4-15.2 Clear Product Data Base.

Selection:

Alphanumeric (only): <PASSWORD>,(CLEAR) PRODUCT FILE

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Operation: This will totally deactivate all products currently in the data base at the time of selection. There is no way to restore these products other than by rereading from an archive optical disk or rerequesting from an RPG.

This is normally only performed prior to reading in an archive optical disk to avoid mixing data bases, and for test purposes. It may also be needed in the event of a severe product data base index pointer table corruption. Refer to appendix H, item 4, for details.

Due to the severe implications of executing this command by accident, it is password protected. This is the same password used everywhere else that "password" is specified.

Section 4-16: Display and One-Time Request of Clutter Filter Control Products (CFC)

4-16.1 CFC Display.

The CFC products are special graphic products in that their display is initiated from the alphanumeric terminal via the (D)ISPLAY,(G)RAPHIC PRODUCT selection (see section 4.1.1), (D)ISPLAY,(N)EXT QUEUED, (G)RAPHIC selection (see paragraph 4-11.1 [Display Next Queued Graphic Product.](#)) or the (S)TATUS,(P)RODUCTS IN PUP DATABASE selection (see paragraph 4-4.1 [Display Product from List Command.](#)). The graphic tablet does not have a CFC product display selection box, since, the CFC products are not routinely displayed like all other graphic products. The CFC products can, however, be displayed from the graphic tablet via the DISPLAY QUEUED PRODUCT selection (see section 4.11) or if the Pick-a-Product screen is currently displayed for the CFC product (see paragraph 4-1.4 [Pick-A-Product Display Menu.](#)). Once a CFC product is displayed, the usual geographic product manipulation functions (magnify, recenter, filter, etc.) can be applied. The products are displayable in quarter screen mode and they can be annotated in both full and quarter screen mode. Additionally, the CFC products are archivable. The CFC products can not be time lapsed.

4-16.2 CFC One-Time Product Requests.

One-time product requests for the CFC products are performed in the same manner as all other graphic products (see [Section 4-5: One-time Product RPG Requests](#)). Because, the CFC products are not routinely received from the RPG, the operator should make one-time product requests to insure that the most recent CFC products are in the PUP database when requested for display. The operator can request four different CFC products. Each product has a product identification number of 34, but, their product parameters are different. The products are differentiated as follows:

- A. Surveillance channel, elevation segment number 1
- B. Surveillance channel, elevation segment number 2
- C. Doppler channel, elevation segment number 1
- D. Doppler channel, elevation segment number 2

When making one-time requests from the alphanumeric terminal, the operator should leave the time and date fields blank (or enter "*" in the time field to initiate the direct RPG request function) to insure that the RPG will transmit the most recent CFC products. If the specific time and date of the products in the RPG database are known, the operator can enter the time and date, but, this will typically not be the case. The elevation segment number parameter (1 or 2) should be entered in the SLICE field. The channel parameter (D or S) should be entered in the PARAM1 field.

Note: It does not make sense to have the CFC products on the Routine Product Set List since the RPG does not generate these products on a routine basis. If the products are on the RPS list, the RPG will transmit the products only during the volume scan in which the products were generated. The RPS list should be reserved for products generated on a routine basis.

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Chapter 5

Product Parameters

For each NEXRAD product type, a set of parameters exists which uniquely specifies:

- a. Each version of the product stored in the PUP data base
- b. Each version of the product to be obtained from an RPG and transmitted to the PUP data base.

The latter may be a product already built and prestored at the RPG, or newly created and transmitted by the RPG as a result of the PUP request. In addition to the set of parameters which specifies the product version for a. and b. above, there are transmission request parameters which only apply to the transmission of the product in the case of b. There is also a display product parameter (screen) in the case where a graphic product is selected for display.

Section 5-1: Product Parameter Definitions

Table 4 - 1: Product Parameters contains a list of currently defined NEXRAD products. It indicates which product parameters, transmission parameters, and display parameters are applicable to each product type and what their permissible values are. Parameters are applicable to a product only where they are variables. For example, the Echo Tops product does have data levels, but there are always 16 levels. In this case, it is not a selected product parameter. The Composite Reflectivity product, on the other hand, may have 8 or 16 data levels. In this case, it is a product parameter and must be specified so that the desired version may be obtained.

Products which have Data Levels, Resolution, and Layer as product parameters may have any permissible combination of these parameters (as well as elevation, time, date, and RPG) defining simultaneously storable and displayable product versions in the data base. Products with "cross section end points" as parameters use the westernmost (or northernmost if both end points are equally west) cross section end point only as a unique identifying parameter (as well as time, date, and RPG) for storage purposes. Thus, multiple cross sections from the same time and RPG may be retrieved as long as the westernmost cross section point is unique. Products with the parameters of product center, WER plane assignments, or storm speed and direction may only have one version of these parameters stored per combination of elevation, time, date, and RPG. A newly received version of one of these latter product types with the exact same elevation, volume scan time, date, and RPG will simply replace a previously stored version in the PUP data base.

Table 4 - 1: Product Parameters contains a column labeled "Product ID". This is an internal NEXRAD product identification number which uniquely specifies products for every permissible combination of data levels, resolution, and layer. These numbers are used, not to request products, but to provide this information on the following alphanumeric status displays: "TYPES OF PRODUCTS AVAILABLE IN PUP DATABASE," "PRODUCTS IN PUP DATABASE FOR PRODUCT XX" (XX indicates product ID number), and "RPG PRODUCTS AVAILABLE". In addition, adaptation data menus which assign background maps, overlays, and color assignment associations to individual products use this product ID to identify the product. This product ID number is listed in the title line of every graphic and alphanumeric product. When graphic products are requested for display and are not available, this ID number will be identified along with the product name and other parameters on the display in lieu of the product. This enables the operator to request the list of products available in the data base for this product via the alphanumeric Status menu, if desired. Depression of function key 21 on the alphanumeric terminal will always provide a special Help screen which will list these product ID numbers.

Product parameters for product display or RPG requests are selected either from the Product Parameter Area on the lower left side of the graphic tablet, or from the edit screens obtained from the Display menu of the alphanumeric terminal.

Products listed on **Table 4 - 1: Product Parameters**, which do not list screen as a parameter, are either alphanumeric products, displayed only on the alphanumeric screen or non-displayable data arrays for transmission to PUES and Other Users. Graphic products are only displayed on the graphic screens.

Table 5 - 1: Product Parameter Definitions lists the meaning of each parameter type and indicates the normal usage of each.

Section 5-2: Product Parameter Defaults

Table 5 - 2: Parameter Defaults identifies the default value for each product parameter. Default product parameters are the values assigned to a product type (each type has an individual product name) when the product type is selected. On the graphic tablet, they are selected from the DEFAULT PARAMETERS box in the parameter select area. On the alphanumeric terminal, they are selected from the Display menu by entering the mnemonic for the product as part of the command. Once the default assignments are identified to the operator, on the graphic or alphanumeric screens, any or all parameter assignments may be changed before the product is selected for display (or for transmission from the RPG). The reason for default parameter assignments is to reduce to a minimum the need for the operator to alter the parameters to obtain the desired product.

Section 5-3: Product Parameter Entry Format

Refer to paragraph 1-3.3 [Product Parameter Select Mode](#), for a description of product parameter entry from the graphic tablet. Refer to [Section 2-4: Edit Screen Usage](#), for product parameter entry via the alphanumeric terminal.

[Table 5 - 3: Entry Format Types](#) indicates the entry format for each parameter type for both the graphic tablet and alphanumeric terminal entry of product parameters. It indicates whether the entry is to be alphabetic, integer, or decimal numeric, etc., add how many characters, digits, and decimal places, etc., are permissible as a maximum, and required as a minimum.

Time and Date parameters are applicable to every product. For these parameters, blank fields are normally used. A blank time or date field (both graphic and alphanumeric select) will look for the most recently stored product when searching in the PUP data base. If no product is found and SEND RPG REQUEST is used to forward the request to the RPG, a blank in either the time or date field indicates a request for the current volume scan time and date. This is the default for time and date. If requesting from the alphanumeric terminal, inserting an asterisk in either the time or date fields will cause the request to be forwarded directly to the RPG, skipping the search through the PUP data base.

RPG is also a parameter applicable to every product except PTM. This field is also normally left blank. This indicates the dedicated line to the associated RPG for RPG product transmission requests. For display requests from the PUP data base, a blank RPG field will specify the associated RPG regardless of what communications line it came over, dedicated or dial-up. If an RPG mnemonic is entered for this field, only the specified RPG is applicable, not only to the product but also the background maps, overlays, and other geographic information such as latitude/longitude of cursor read-outs. The presence of an RPG mnemonic also indicates that the request, if and when sent to the specified RPG, will be sent over a dial-up line, even if it is the associated RPG.

Table 5 - 1: Product Parameter Definitions

PRODUCT PARAMETER	MEANING
NO. DATA LEVELS	Number of individual data thresholds associated with a product (8 or 16).
RESOLUTION	The resolution, in each of the X and Y directions, of the product data, in nautical miles (.13 nm, .27 nm, .54 nm, 1.1 nm, 2.2 nm). For products with elevation as a parameter, this resolution is only in the radial direction. The resolution in the azimuthal direction is fixed at one degree.
ELEVATION (angle)	Angle of the radar, in degrees above the horizontal, at which a product with this parameter is generated.
LAYER	For Layer Composite products this indicates the altitude layer, above mean sea level, of the product (High Alt, Mid Alt, Low Alt). The altitudes are determined by RPG adaptation data.
VAD ALTITUDE	Number indicating thousands of feet above mean sea level that the product data has been gathered. This parameter is currently used only for the Velocity Azimuth Display product.
DURATION	Number of consecutive hours of precipitation accumulation. This parameter is currently used only for the User Selectable Precipitation product.
ELEVATION SEGMENT NUMBER	Indicates which clutter filter bypass/notchwidth maps were used to generate the Clutter Filter Control product. A 1 indicates the lowest elevation segment and a 2 indicates the upper elevation segment. The RDA adaptation data delineates the angle between the two segments.
CHANNEL	Indicates whether the surveillance or Doppler channel notchwidth map was used to generate the Clutter Filter Control product.
END HOUR	Whole clock hour indicating the time precipitation accumulation ended. This parameter is currently only used for the User Selectable Precipitation product.
CENTER AZIMUTH	Angle in degrees clockwise from the north along the earth's surface, of the center of the product from the radar.
CENTER RANGE	Distance from the radar, in nautical miles, of the center of the product.
STORM SPEED	Rate, in positive knots, of the storm, for selection of the storm relative motion. The Storm Relative Mean Radial Velocity Region (SRR) product replaces the Severe Weather Analysis Velocity (SWV) product when the storm speed is non-zero.
STORM DIRECTION	Direction, in degrees clockwise from the north along the earth's surface, that the storm is coming from for selection of the storm relative motion.
CONTOUR INTERVAL	Interval, in thousands of feet, between data levels associated with the Echo Tops Contour product.
CROSS SECTION SELECT END PT. 1 AZIMUTH	For Cross Section products, this indicates the angle, in degrees clockwise from the north along the earth's surface, at which the first point of the cross section originates.
CROSS SECTION SELECT END PT. 1 RANGE	For Cross Section products, this indicates the distance from the radar, in nautical miles, of the first point of the cross section.
CROSS SECTION SELECT END PT. 2 AZIMUTH	For Cross Section products, this indicates the angle, in degrees clockwise from the north along the earth's surface, at which the second point of the cross section originates.
CROSS SECTION SELECT END PT. 2 RANGE	For Cross Section products, this indicates the distance from the radar, in nautical miles, of the second point of the cross section.
TIME	The time of day associated with the specific date, to determine the particular volume scan version of the product. Normally, the time need not be specified exactly; anywhere within a volume scan or within a few minutes is acceptable.
DATE	The volume scan start date of the product.
BLANK TIME DATE	This function will blank the time and date fields, if they were not already blank, for the purpose of requesting a new product from the RPG.

Table 5 - 1: Product Parameter Definitions

PRODUCT PARAMETER	MEANING
RPG	A four-letter mnemonic used to determine the product RPG origin. If no RPG is specified, the default is the associated RPG.
<u>Transmission Parameters:</u>	The following four parameters apply to one-time requests only, and not to routine product set entries, with the exception of REQUEST FREQUENCY
REQUEST FREQUENCY	This parameter applies only to an RPS list. It is represented by the heading REQ FRQ on the RPS edit screen. Its value is normally 1 which means that the product is to be sent to the PUP every volume scan. A 2 in this field means the product is to be sent every other volume scan, a 3, every third volume scan and so on up to the maximum value of 9.
REQUEST PRIORITY	HIGH PRIORITY is the default priority. If LOW PRIORITY is specified for the product request, it will reduce the priority that the RPG will place on transmitting the product and increase the likelihood that the request will be narrow-band loaded by the RPG.
REPEAT COUNT	Normally set at 1 (send one product only), this count may be increased up to 9 for the dedicated associated RPG communication line only (if RPG field and the TIME and DATE fields are left blank). This is the total number of volume scans to send the same product, starting at the present. Thus, for every volume scan (e.g., every 5 or 6 minutes) a new version of the same product will automatically be sent by the RPG without having to make additional one time requests, for up to 9 volume scan periods.
REQUEST MAPS	Since a PUP has permanent storage of background maps only for its NEXRAD Unit Coverage area, it must obtain all but the Polar Grid, Range Ring, and RDA background maps, along with products, from non-associated RPGs. The above three maps are created by the PUP for any NEXRAD Unit and cannot be requested. Each RPG has adaptation data which specifies what set of background maps are to be sent, with a one-time product request, for storage at the PUP. As long as these maps remain stored, they will be displayable with any product from that particular RPG. The maps are stored in the product data base and eventually will be overwritten at the same time as the product they were received with. Since one set of maps from another RPG will be retained and available for a minimum of 6 hours, it is not a good idea to request them too frequently, as one transmission of a set of maps over a dial-up line could take up to several minutes. For this reason the REQUEST MAPS parameter is always defaulted to N (no).
ALL/ONE SWA	This parameter is a toggle function and is valid only for the Severe Weather Analysis (SWA) products. It is used to indicate whether the request to be sent to the RPG is only for the current SWA product or for all four SWA products at once. Therefore, it is not really a transmission parameter that is sent to the RPG but is used internally by the PUP to determine how to make the SWA product request.

Table 5 - 2: Parameter Defaults

	Product Parameters										Transmission parameters			default param-eters	
	no. data levels	resolution	slice elevation altitude layer elev seg duration	product center azimuth & range	storm relative speed & direc-tion	channel	end hour	contour interval	cross section pt1 & pt2 azi-muth & range	time & date	RPG	request priority	repeat count	request maps	screen
Default Type	a	a	b b a b b	b b	d d	b	b	e	b b	c c	f	g	h	i	j

DEFAULT TYPES:

- A. Last specifically entered during a display request for this parameter for this single product type.
- B. Last specifically entered during a display request for this parameter for any product with this parameter.
- C. Current date and time when selected from the PUP data base, default time and date will appear as blanks. If the product is available and the request is forwarded to the RPG, it will also mean the current time and date.
- D. Fixed value = 0 kt and 0 degrees storm relative motion for SWA velocity. For storm relative mean radial velocity product storm relative motion is RPG algorithm determined.
- E. Fixed value = 5 K FT.
- F. Associated RPG (blank means same as associated RPG mnemonic).
- G. Fixed value = high priority (H on alphanumeric terminal)
- H. Fixed value = 1 (one product request only)
- I. Fixed value = no requested maps.
- J. Fixed value = left screen fro graphic products.

Table 5 - 3: Entry Format Types

	Product Parameters										Transmission parameters			
	no. data levels	resolution	slice elevation altitude layer elev seg duration	product center azimuth & range	storm relative speed & direction	channel	end hour	contour interval	cross section pt1 & pt2 azimuth & range	time & date	RPG	request priority	repeat count	request maps
entry for- mat type	a	g	c a o i a	e e	e e	d	a	a	e e	g f	h	d	i	d

DEFAULT TYPES:

- A. ONE OR TWO DIGIT NON NEGATIVE INTEGER VALUE.
- B. TWO DIGIT DECIMAL VALUE SIGNIFICANT TO TWO DECIMAL PLACES. THREE CHARACTERS (INCLUDING DECIMAL POINT).
- C. THREE DIGIT DECIMAL VALUE SIGNIFICANT TO ONE DECIMAL PLACE. TWO TO FOUR CHARACTERS (INCLUDING
- D. SINGLE ALPHABETIC CHARACTER ENTRY.
- E. ONE TO THREE DIGIT NON NEGATIVE INTEGER VALUE
- F. SIX TO EIGHT CHARACTER STRING OF WHICH AT LEAST SIX ARE NON NEGATIVE INTEGER VALUES. SLASHES BETWEEN DAY, MONTH, AND YEAR ARE OPTIONAL. (E.G. 01/01/87 IS OK, 1187 IS NOT).
- G. THREE TO FIVE CHARACTER STRING OF WHICH AT LEAST THREE ARE NON NEGATIVE INTEGER VALUES. COLON BETWEEN HOURS AND MINUTES IS OPTIONAL IF THREE NON NEGATIVE INTEGER VALUES ARE IN THE STRING, IT IS ASSUMED THAT THE HOUR IS LESS THAN (E.G., 1:05 IS OK, 105 IS OK, 15 IS NOT OK).
- H. FOUR ALPHABETIC CHARACTER STRING
- I. ONE DIGIT NON NEGATIVE INTEGER
- J. ZERO TO TWO ALPHANUMERIC CHARACTER ENTRY (E.G., L, R OR BLANK OR L1, ETC.).

Chapter 6

Graphic Display Functions

Paragraph 1-2.2 [Function Selection Areas of Graphic Tablet](#), describes the functional areas of the graphic tablet. Individual functions of the tablet area which are described in other sections of this document are as follows:

- a. User Functions - [Chapter 11 User Function Operations](#)
- b. Cancel Help - [Chapter 3 Help](#)
- c. Product Select - [Chapter 4 Request and Control Of Products](#)
- d. Product Parameter Select - [Chapter 4 Request and Control Of Products](#)
[Chapter 5 Product Parameters](#)
- e. Editing - [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#)
- f. Keyboard Area - [Chapter 4 Request and Control Of Products](#)
[Chapter 5 Product Parameters](#)
[Chapter 12](#)
- g. Special Graphic Symbols - [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#)

Individual functions of the tablet area which are described in this section are as follows:

- a. Graphic Display Functions Area (with exceptions) (Sections 6.1 - 6.9)
- b. Overlay Area (Sections 6.10)
- c. Background Map Area (Sections 6.11)

In addition to the graphic tablet functions contained in these tablet areas, there are alphanumeric commands which are graphic display functions. Most of these duplicate requests of functions which are listed in the areas of the tablet described in this section, i.e., Time Lapse functions.

There is one graphic display function, Display Test Pattern, which may only be selected from the alphanumeric terminal. This is because it is commonly used as a graphic subsystem diagnostic tool, and since the graphic tablet is an integral part of the graphic display subsystem, it should be available for selection from outside that subsystem.

In addition to the above, a complete description of all Time Lapse functions, including time lapse definition commands and edit screens available only on the alphanumeric terminal, are included in this section.

This section is organized as follows:

[Section 6-1: Time Lapse Functions](#)

[Section 6-2: Quarter Screen/Full Screen Functions](#)

[Section 6-3: Recenter, Magnify Functions](#)

Section 6-4: Clear Screen/Quad Function

Section 6-5: Filter Function

Section 6-6: Combine Functions

Section 6-7: Gray/Color Scale Function

Section 6-8: Restore Displayed Product Function

Section 6-9: Preset Center Function

Section 6-10: Overlay Display Functions

Section 6-11: Background Map Display Functions

Section 6-12: System Option Graphic Display Function

Section 6-13: Display Test Pattern Function

Section 6-14: Blink Color Level Function

Section 6-15: VR/Shear Display Function

Section 6-16: Cell Trends Display Function

Functions identified in the Graphic Display Function Area of the graphic tablet, but described elsewhere in this document, are:

- a. Cursor Home (paragraph [1-1.3 Cursor Home Function.](#))
- b. Cursor Coordinate Display Function (paragraph [1-1.2 Cursor Coordinate Display Function.](#))
- c. Cursor Coordinate Display Auto/Manual Function (paragraph [1-1.4 Cursor Coordinate Display Auto/Manual Function.](#))
- d. Auto Display Resume/Halt (paragraph [4-9.1 Auto Display - Graphic, Start, Resume, Halt.](#))
- e. Auto Display Speed Up/Speed Down (paragraph [4-9.4 Auto Display - Graphic, Speed Up, Speed Down.](#)).

Section 6-1: Time Lapse Functions

Three time lapse loops are available for use in defining and/or displaying time sequences of any particular graphic product type, where all definition parameters, e.g, Elevation Angle, Resolution, RPG, etc., remain constant, with the exception of time, date, storm direction, and speed. The loop sequence can be built from any such sequence contained in the PUP data base at the time it is built. Additionally, the loop may continually be updated with newly received frames of the product. From one to 72 frames may be contained in a loop.

Notes:

Graphical precipitation (OHP, STP and THP) products created by a pre-9.0 version of the RPG software cannot be time lapsed, but will be included in the number of frames skipped in the feedback message displayed at the completion of the time lapse definition.

Time Lapse subsections are as follows:

6-1.1 Time Lapse Define.

6-1.2 Time Lapse Define and Display.

6-1.3 Time Lapse Display.

6-1.4 Time Lapse Halt.

6-1.5 Time Lapse Frame Forward.

6-1.6 Time Lapse Frame Back.

6-1.7 Time Lapse Resume.

6-1.8 Time Lapse Speed Up, Speed Down.

6-1.1 Time Lapse Define.

Selection:

Alphanumeric (only): (T)IME LAPSE,(DE)FINE, <TL#>, <prod-name>

After entry, the terminal displays the Time Lapse Define edit screen.

Active

Environment: Always active

Options and

Parameters: Time Lapse Loop Number 1, 2, or 3
 Product Name (mnemonic) (1 to 3 letters)(blank=default)
 Product Parameters (up to 6, depending on product)
 Start Time and Date (of first frame)
 Maximum Frame Count (1 to 72 valid)
 Continuous Update Option (Y or N)

Defaults: Product Name = Currently defined for that loop
 Product Parameters = Currently defined for that product
 Start Time = Time of "max. frames" x 5 minutes into past from current time
 Start Date = Date of start time in past
 Maximum Frames = 12

Continuous Update = N (no updating as new frames arrive)

Default

Note: If a new Product Name is selected after the Time Lapse Number on the command line, the edit line will come up with new product parameter defaults.

Operation: This function will build a time lapse loop sequence (to be subsequently selected for display). Frames used to build the time lapse loop are those already stored in the PUP data base. As new frames arrive, they are added to the loop if Continuous Update = Y. There are three time lapse loops which may be defined. Once built, a time lapse loop will remain accessible, in its entirety, until it is redefined, unless it is continuously updated. The "build time lapse" operation saves the defined frames in a special area on the disk so that the products will not be deleted as they are from the general product data base after more than 6 hours. A second version of each frame is built, with reduced resolution, which is used to achieve display rates greater than one frame per second.

The Time Lapse Define edit screen on the alphanumeric terminal is used to define one time lapse loop at a time (see Appendix A). Once the edit screen is entered, it displays the current definition of all three time lapse loops. The operator may use this screen merely to examine the current definitions or to redefine a time lapse loop by selecting the time lapse loop number on the command line. To alter the product type for the selected loop the product name mnemonic (one to three letters) should also be entered on the command line. Once all necessary selections have been made on the command line, the program will fill in the edit line with the current default parameters for the selected product. The actual definition of the loop will not be executed until the Return key is depressed from the edit screen. When it is, the data on the edit line will be used to define the loop and will replace the previous definition of that particular loop listed below the edit line.

To define a time lapse loop, the procedure is similar to other edit screens. First, default data is automatically displayed on the edit line for the selected loop. Alterable fields should be located by TAB forward or back. Simply type over the data to replace it, tab to the next field, replace it, etc. Any field which already contains the correct data may be passed over by tabbing. It does not matter what field the cursor is in when Return is depressed to define the loop. Parameters which do not apply to the selected product will not have fields for the tab to stop. If the RPG line is filled in (blank means the default, associated RPG), only those frames of this product from that RPG will be included. Start date and time may be entered or left blank. These define the beginning of the loop. If left blank, they will be automatically determined as the present time/date minus five minutes into the past for each frame entered in "Maximum Frame Count". If an asterisk is entered in each time/date field, the present time/date will be used. The Maximum Frame Count will determine the maximum number of frames to be built in the loop. The loop will be built by scanning the current data base for the defined product frames. It begins with the start time/date and scans forward including each frame found up to the maximum frame count or the current time, whichever comes first. Adjustment of the update rate (volume scans per frame) is done in the Routine Product Set List by determining the frequency of frames to be acquired.

The selection of the Continuous Update option means that every time a new product frame meeting the loop definition arrives from the RPG, it will be added to the loop. If the maximum frame count was not yet reached, it will simply be added to the end of the loop. If the maximum frame count was reached, it will be added to the end of

the loop and, concurrently, the oldest product will be removed from the beginning.

Notes: When the time lapse loop build operation is completed, a feedback message will be displayed to the operator.

There is a software restriction on the size of an individual time lapse loop frame. Frames that exceed this size restriction will be skipped in the loop and not counted in the total number of frames. The feedback message generated at the completion of the build operation indicates the number of frames skipped due to this size restriction by appending the phrase "x NI", where x is the number of frames not included. The product that will most likely exceed this restriction is product number 37 (composite reflectivity at .54 n. mi. resolution) although it could occur with base products as well.

To display a loop immediately after defining it, the "DEFINE AND DISPLAY" (DD) command is more convenient to use.

The time it takes to build a time lapse loop is dependent upon the amount of data contained in each of its frames, but, in general, it should be considerably less than one second per frame.

If the Time Lapse Define edit screen is entered to examine the loop definitions, but not to alter them, then operator entry should be "T,DE" only, with no time lapse loop number following. It should be exited with a function key.

If fewer than the requested number of frames are found in the data base and Continuous Update is not selected, the number of frames actually contained in the loop will subsequently be shown on the Time Lapse Define edit screen. If Continuous Update is selected in this case, the loop will continue to add frames, as they become available, until the requested number of frames is stored. Only after that will the oldest frame will be deleted when new ones are stored.

6-1.2 Time Lapse Define and Display.

Selection:

Alphanumeric (only): (T)IME LAPSE,(DD)DEFINE AND DISPLAY <screen>, <rate>,
<TL#>, <prod-name>
(Goes to Time Lapse Define edit screen)

Active

Environment: Always active

Options and

Parameters: Time Lapse Loop Number 1, 2, or 3
Screen (left or right) for display
Rate (seconds, tenths of second with decimal point: min = .3 seconds, max = 10 seconds) of frame interval
Product Name Mnemonic (1 to 3 letters)(blank=default)
Product Parameters (up to 6, depending on product)
Start Time and Date (of first frame)
Maximum Frame Count (1 to 72)
Continuous Update Selected (Y or N)

Defaults:

Screen = L (left)
Rate = Last selected for any loop

Product Name = Currently defined for that loop
Product Parameters = Currently defined for that product
Start Time = Current time minus ("max. frames" x 5 minutes)
Start Date = Date of start time
Maximum Frames = 12
Continuous Update = N (no)

Operation: This function combines the Time Lapse Define function with the Time Lapse Display function. The definition is to be made in a manner similar to that described for Time Lapse Define, with the display screen and rate parameters of the Time Lapse Display function added. See the description of these two functions for an understanding of how to make the selection of this function and what the various parameters mean.

After this function is selected, via command and edit screen, it will be executed, following depression of the Return Key. A feedback message will be displayed indicating that the loop is being built, followed automatically by the display of the loop on the selected screen at the selected rate.

Notes: A loop defined with Time Lapse Define and Display will remain defined in the same manner as one defined with Time Lapse Define. Selections made on the other screen may slow or temporarily halt the time lapse that is currently running.

If the same time lapse loop is redefined and displayed, the previous time lapse will halt.

If edit mode is active on the selected graphic screen, the display portion of this function will not be executed.

Other selections may be made on the other graphic screen while a time lapse is running.

When the display speed is altered up or down, so that it passes between one frame per second, and faster than one frame per second, this causes the resolution of the display to change. At one frame per second or slower, the time lapse is normal display resolution. At faster than one frame per second, a lower resolution version of the time lapse data is used. It is drawn in one quarter of the pixels used by the normal resolution, and is then zoomed to look the same size on screen. This is necessary to speed up the display time. When the display rate transition is made, the time lapse, if currently running, will momentarily pause while the resolution is changed.

6-1.3 Time Lapse Display.

Selection:

Graphic Tablet: TIME LAPSE 1
TIME LAPSE 2, or
TIME LAPSE 3

Alphanumeric: (T)IME LAPSE,(DI)SPLAY, <TL#>, <screen>, <rate>

Enters edit screen at this point

Active

Environment: Always active for a predefined time lapse loop, except when graphic edit mode is in effect (see [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#)).

Options and Parameters:	Time Lapse Loop Number 1, 2, or 3 Screen (left or right) Display rate per frame (seconds or tenths of second with decimal point) Min=.3 sec., max=10 sec.
Defaults:	(from alphanumeric) Screen = Left Display rate = last selected rate for any loop display
Operation:	This function will cause the selected, predefined, time lapse loop to sequence on the selected graphic screen, starting always with the first defined frame. The display will sequence at the selected rate until it is halted by the operator.
Notes:	<p>The display rate may be altered while a time lapse loop is sequencing (or halted) with the time lapse SPEED DOWN or SPEED UP function.</p> <p>No overlays may be overlaid on time lapse frames displayed from a loop. To see overlays on a frame, they must be selected separately for display as a single product.</p> <p>Background maps may be displayed on time lapse frames and may be added or deleted at any time. The default background maps for the product are displayed upon time lapse display selection.</p> <p>If more frames were defined for a loop than were found in the data base, the loop will only display the frames found. Missing frames will not cause the screen to blank but will simply be ignored.</p> <p>If Continuous Update has been selected as an option for defining the time lapse loop, frames may be automatically added or deleted from the loop while it is simultaneously being displayed.</p> <p>If the same time lapse loop is selected for redefinition via the Time Lapse Define edit screen on the alphanumeric, this will automatically cancel display of that loop.</p> <p>Only one time lapse loop may be displayed at a time. If a loop is being displayed and another loop is subsequently selected on the other screen, the current loop will halt and be deactivated (none of its functions active, e.g., RESUME).</p> <p>Display selections made on the other graphic screen may temporarily interrupt a time lapse display.</p> <p>Most forms of screen manipulation, i.e., recenter, magnify, change background maps, filter, combine, product off, maps off, or gray scale, which can be performed on a time lapse loop frame, will be maintained throughout the sequence.</p>

6-1.4 Time Lapse Halt.

Selection:

Graphic Tablet:	TIME LAPSE RESUME/HALT toggle
Alphanumeric:	(T)IME LAPSE,(H)ALT

Active

Environment: Active only while a time lapse loop is cycling on a graphic display.

Options and
Parameters: Screen (left or right) (graphic tablet only)

Defaults: None

Operation: This function halts a currently cycling time lapse sequence at the current or next frame depending on time of selection.

Notes: When selected from the graphic tablet, the correct screen button must be used. When selected from the alphanumeric terminal, the screen need not be selected. Time Lapse FRAME BACK and FRAME FORWARD become activated when the time lapse is halted. SPEED DOWN and SPEED UP may be selected with the time lapse halted, as they are when it is running. A halted time lapse may have its background maps modified or may otherwise be manipulated on the screen (with the exception of adding overlays). RESTORE DISPLAYED PRODUCT will also function to reverse any manipulations. There is no need to halt a loop before another display selection can be made.

6-1.5 Time Lapse Frame Forward.

Selection:

Graphic Tablet (only): FRAME FORWARD

Active

Environment: Active only while a time lapse loop sequence is halted with TIME LAPSE HALT or when it has automatically stopped at the last frame.

Options and
Parameters: None

Defaults: None

Operation: This function will cause a time lapse loop sequence, which has stopped sequencing, to display the next loop frame in the sequence. If the last frame of the loop was displayed, this function will display the first frame of the loop.

Notes: Multiple selections of this function, if made too rapidly (faster than once per second), will not be executed. Screen manipulation of the current displayed frame will be retained in subsequent frames.

The PRODUCT FORWARD function will operate in a similar manner on a normal non-time lapse display, but without wraparound and with the screen blanking between frames, which it does not do in a time lapse loop.

6-1.6 Time Lapse Frame Back.

Selection:

Graphic Tablet (only): FRAME BACK

Active

Environment: Active only while a time lapse loop sequence is halted with TIME LAPSE HALT or when it has automatically stopped at the last frame.

Options and**Parameters:** None**Defaults:** None

Operation: This function will cause a time lapse loop sequence, which has stopped on any but the first frame, to display the previous loop frame in time in the sequence. If the loop was previously halted on the first frame, this function will display the last frame in the loop.

Notes: Multiple selections of this function, if made too rapidly (faster than once per second), will not all be executed.

Screen manipulation of the current displayed frame will be retained in subsequently selected frames.

The PRODUCT BACK function will operate in a similar manner on a normal non-time-lapse display, but with screen blanking.

6-1.7 Time Lapse Resume.**Selection:**

Graphic Tablet: TIME LAPSE RESUME/HALT toggle
 Alphanumeric: (T)IME LAPSE,(R)ESUME

Active

Environment: Active only while a time lapse loop sequence is halted and is still active (no subsequent time lapse loops selected).

Options and**Parameters:** Screen (left or right) (graphic tablet only)**Defaults:** None

Operation: This function will resume, at the currently selected display rate, a halted time lapse loop display sequence, or one which has stopped at the last frame. It will resume at the next frame in sequence, or the first frame, if the loop was stopped at the last frame.

Notes: A screen manipulated time lapse will resume with all manipulation retained. If, however, it was magnified, this could cause the display rate to slow down, particularly at higher magnifications, until the normal magnification (1X) is restored.

6-1.8 Time Lapse Speed Up, Speed Down.**Selection:**

Graphic Tablet (only): SPEED UP or SPEED DOWN

Active

Environment: Active only while time lapse loop is displayed and active (hasn't been deactivated by displaying a subsequently selected loop on the other screen). It may still be sequencing, halted, or stopped at the end.

Options and
Parameters: Speed Up or Speed Down

Defaults: None

Operation: These functions will alter the display sequence rate of a time lapse loop. If the rate is between one-third second per frame and one second per frame, it will speed up (or slow down) by one-third second increments per function selection. If the rate is between one and 10 seconds per frame, the increment will be one second per selection. After each selection, the new display rate will be indicated on the Time Lapse Display Rate status line on the active graphics screen of the loop.

Notes: These functions may be selected while the loop is sequencing, in which case the display rate will be altered immediately. They may also be selected when the loop is not sequencing, in which case the new rate will be used when sequencing is resumed.

The newly selected rate will remain in effect for this or any subsequent time lapse loop displays until a new rate is specified either on the graphic tablet or the alphanumeric terminal.

Fast sequencing time lapse loops may cause delays in response from graphic tablet selections. The graphic tablet selection and time lapse display rate status lines on the screen will indicate when the selections have been acknowledged.

Section 6-2: Quarter Screen/Full Screen Functions

This section describes the functions which control quarter screen mode or return to full screen mode on a graphic screen. Quarter/full screen modes are screen independent.

When a screen is in quarter screen mode, one quadrant is always selected as the active quadrant and is outlined in green. Any subsequent display requests for that screen will be for that quadrant only, until the selected quadrant or screen mode is changed.

In general, geographic products, background maps, and product parameter selection screens are all available on quarter screen. Non-geographic products, the NEXRAD UNIT STATUS display, test patterns, the "Pick-A-Product" screen, and the color selection screen are not available in quarter screen. The subsections of this section are:

6-2.1 Quarter Screen/Quadrant Select.

6-2.2 Full Screen.

6-2.1 Quarter Screen/Quadrant Select.

Selection:

Graphic Tablet:	QUAD 1
	QUAD 2
	QUAD 3
	QUAD 4

Alphanumeric:	L1, L2, L3, L4, or R1, R2, R3, R4, under SCR field in Display Graphic Product edit screen
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Active

Environment: Always active except in edit mode on the selected graphic screen, or while concurrently selecting a graphic product, which is not displayable in quarter screen, via the alphanumeric terminal.

Options and

Parameters: Screen (left or right)
Quadrant (1, 2, 3, or 4)

Defaults: None

Operation: When selection is made from the graphic tablet, this function simultaneously places the selected graphic screen into quarter screen mode and selects a particular quadrant to be used for subsequent product display selections. If the screen was previously in full screen mode, the screen will clear and a quarter screen outline will be displayed with the selected quadrant outlined in green. If a different quadrant is subsequently selected, then the green outline will move to that quadrant.

When quadrant selection is made from the alphanumeric terminal, it must be entered as a parameter for a graphic product display request. Upon execution from the alphanumeric, the graphic screen will be cleared, the quarter screen outline will appear, and the selected product will be displayed in the selected quadrant (if the product is available).

Notes: The selected quadrant also becomes the "Master Cursor" quadrant. This means that if the cursors are selected to be linked on a screen which is in quarter screen mode, the last selected quadrant will be the one the cursor tracks when the puck is moved along the tablet image area. When the puck is in an extreme corner of the tablet image area, the cursor will be in the exact same position in the extreme corner of the master quadrant. Cursors will also be displayed in the other three quadrants and they will be linked geographically to the master cursor. Regardless of what the geographic scales are of the products displayed in other quadrants, their cursors will be placed in the same geographic location as the master cursor. If that location is outside the boundary of a quadrant, that cursor will remain at the edge of that quadrant.

Subsequent product selections made on the graphic tablet will be displayed in the same quadrant as the previous product unless FULL SCREEN or another quadrant selection is made prior to the product selection.

Cursors may only be linked on one screen at a time when both screens are in quarter screen mode. If they are linked on one screen, then linked on the other screen (both in quarter screen mode), the cursors will disappear on the first screen. If quarter screen is selected when the cursors are linked between screens with the other screen already in quarter screen mode, the cursors will automatically unlink.

Selection of ALL SWA PRODUCTS will automatically place the selected screen in quarter screen mode while simultaneously attempting to display a Severe Weather Analysis product (one of each type) in each quadrant. Additionally, when a screen is left clear and SWA Alert Products arrive, the screen will switch automatically to quarter screen mode and begin displaying the SWA products as they arrive.

All full screen recenter/magnification functions are available in quarter screen, as are all other Graphic Display functions listed in Section 6 with the exception of Time Lapse functions.

6-2.2 Full Screen.

Selection:

Graphic Tablet:	FULL SCREEN
Alphanumeric:	L or R under SCR field in Display Graphic Product Edit Screen

Active

Environment: Always active

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: This function will cause graphic product displays, for the selected graphic screen, to be displayed in full screen mode. If it is selected on the graphic tablet, it will be used for subsequent product display selections. It will also clear any quarter screen displays on that screen. The full screen display mode will remain until a quadrant selection is made to enter quarter screen mode.

Notes: Certain graphic products may not be displayed in quarter screen mode and must be displayed in full screen; their selection, however, will not automatically place the screen in full screen mode. These, in general, are non-geographic products with x and y scales presented on the display.

CLEAR SCREEN/QUAD will not return the screen to full screen mode when in quarter screen mode, but will clear the selected quadrant only.

Display of the NEXRAD UNIT STATUS DISPLAY or a test pattern will return the screen to full screen mode.

If the selected screen is already in full screen mode, this function will have no effect.

Section 6-3: Recenter, Magnify Functions

Recentering and magnification are combined. Four functions are available on the graphic tablet to immediately select the desired magnification (1, 2, 4, or 8) for any currently displayed geographic product or background map, regardless of its current magnification. Recentering, only, may be accomplished by reselecting the current magnification factor. Current magnification factors are displayed immediately under the product color bar area of the graphic screen by the status message "MAG=nX" for products to which it applies. Centers will be positioned at the last selected geographic cursor coordinate from either screen. The four magnification graphic tablet functions are described in Section 6.3.1.

6-3.1 Recenter, Magnify.

Selection:

Graphic Tablet (only): RECENTER MAG 1X
 RECENTER MAG 2X
 RECENTER MAG 4X
 RECENTER MAG 8X

Active

Environment: Active when a "geographic" product which does not have a center as product parameters is displayed on the selected screen and not in edit mode. Also, active when one or more background maps are displayed without a product.

Options and

Parameters: Recenter Coordinate
 Screen (left or right)
 Magnification Factor 1X, 2X, 4X, or 8X

Defaults: Recenter Coordinate = Last selected cursor coordinate (in Cursor Coordinate Display) on either screen.

Operation: Prior to the selection of one of these four functions, which determine magnification factor and screen, the recenter coordinate must have been specified. The recenter coordinate will always be the last selected cursor coordinate. The last selected cursor coordinate is set by placing the cursor at a particular geographic location on a geographic product display and depressing that screen selection button on the puck. This may be repeated many times, but only the last selection is remembered. Alternately, the last selected cursor coordinate can be set with the Cursor Home or Preset Center function. The last selected cursor coordinate can be set from either screen and then used as a center to magnify on either screen. Its position will be retained indefinitely, and used for as many subsequent magnifications as desired until it is reselected.

After selecting the geographic coordinate for the display center (as described above), the Recenter, Magnify function should be selected for the desired magnification of the currently displayed geographic product.

The product to be magnified must already be displayed.

Selection of the Recenter, Magnify function will immediately cause the currently displayed product (at whatever its current magnification factor) to be redisplayed at the newly selected magnification factor, be it higher or lower than, or the same as, the previous magnification factor.

This function may be used to recenter, only, without altering the current magnification, by picking a new "last selected cursor coordinate" on either screen and then selecting Recenter, Magnify for the same magnification factor as is currently displayed on the screen to be recentered.

Magnification will cause all screen manipulation functions to be retained with the exception of PRODUCT OFF which will reset. Map and Overlay selections will be retained also.

If magnification is attempted for non-geographic products, the selection will be ignored.

Products with a specified center as product parameters are premagnified and may not be magnified using this function.

Notes: The current magnification factor of all displayed geographic products is displayed on a status line on the right of the display in conjunction with the current "filter" and "combine" states of the product.

It may be desirable to place an unmagnified version of a product on one screen and magnify various areas of that product on the other screen. The unmagnified version can be used as a visual reference as well as facilitate the selection of new magnification center coordinates for the same product on the other screen. The TRANSFER SCREEN PRODUCT function is useful to select a copy of the same product on the other screen for this purpose.

All magnifications are available on quarter screen displays.

The four magnification factors apply to whatever the scale and resolution of the normal 1X product data is.

Background maps, displayed without products may also be recentered and magnified, however, it should be noted that even at 8X magnification, the resolution threshold to display high detail maps is not crossed; they must be displayed with a product with higher than 2.2 nmi resolution to see high detail maps at high magnifications.

Section 6-4: Clear Screen/Quad Function

This is available as a single function on the graphic tablet and will clear the selected graphic screen or quadrant if in quarter screen mode. This function is described in Section 6.4.1.

6-4.1 Clear Screen/Quad.

Selection:

Graphic Tablet (only): CLEAR SCREEN/QUAD

Active

Environment: Always active except in graphic edit mode on the selected graphic screen.

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: This will clear the selected graphic screen except for the lower right corner, which contains non-product related status information, and the date and time at the top right. If the screen is in quarter screen mode, the currently selected quadrant, only, will clear. In this case, if it is desired to clear all four quadrants, select the FULL SCREEN function.

Notes: To completely blank the entire screen, including all status information and time, then "(D)ISPLAY,(T)EST PATTERN,0,<screen L or R>" may be selected via alphanumeric command for the desired graphic screen to be blanked.

Section 6-5: Filter Function

Graphic products with multiple data levels, i.e., a color scale, may have those colors filtered with this function. Its purpose is to eliminate data associated with values of lower intensity so that data associated with values of high intensity may stand out. Colored contour line products may also be filtered. This function is available on the graphic tablet only and is described in Section 6.5.1.

6-5.1 Filter.

Selection:

Graphic Tablet (only): FILTER

Active

Environment: Active only when a multiple color level graphic product with a color scale is displayed on the selected screen or quadrant.

Options and

Parameters: Filter color level
Screen (left or right)

Defaults: Filter Color Level = lowest level (no filter)

Operation: Prior to the selection of this function, the filter color level should be selected. This is done by positioning the cursor directly over the desired color bar or color level text next to the color bar and depressing the puck button for that screen. The selected color level will momentarily be outlined in yellow. That color level will be remembered for all subsequent Filter selections for that screen, until it is reselected or a new product displayed at which time it will default to lowest.

The selected color level is the color level below which and including all colors will turn off (become transparent) when FILTER is selected. BELOW means of lesser intensity whether physically above or below on the color bar.

Subsequent selections of this function will only have an effect if the filter color level is changed from the current state.

When product colors are filtered, or turned off, in order to leave only higher intensity levels on the screen, they become transparent and the background map information that they covered will appear.

The Range Folded (RF) and No Data (ND) color levels, where they exist, may each be filtered independently of other color levels and of each other.

Notes: It is possible to "unfilter" a product by placing the cursor in the lowest intensity level color bar and reselect Filter. If this does not work, place the cursor on "ND" one level above the lowest intensity level color, gray, and then reselecting Filter. Another way to unfilter a product is to select the RESTORE DISPLAYED PRODUCT function which will redisplay the product with all its default display options.

FILTER is useful in identifying displayed color levels where there is ambiguity. To verify a particular color level, FILTER all levels below it, then FILTER that level. If the color in question then disappears, it has been identified. An alternate method is to use BLINK COLOR LEVEL (See [Section 6-14: Blink Color Level Function](#)).

Note that colors are filtered by their corresponding threshold intensity levels for the particular product they represent. For such products as Velocity, which have positive and negative value colors, it is the absolute value of the intensity that determines the filtering. Thus, colors corresponding to less intense velocity are filtered on both the positive and negative portions of the scale simultaneously. In this case, either the positive or negative level to be filtered below may be selected with the same effect.

If filtering is selected for a time lapse frame, it will be retained throughout the looping.

Section 6-6: Combine Functions

Graphic products which may have color levels filtered may also have those levels combined separately or simultaneously with filtering. This is for the purpose of uncluttering the display. Every 2, 3, 4, or 5 levels may be combined.

Combining is accomplished by "stepping" through the combine options with the COMBINE UP and COMBINE DOWN functions available on the graphic tablet. It will refer to the product currently on the selected display. These functions are described in Section 6.6.1.

6-6.1 Combine.

Selection:

Graphic Tablet (only): COMBINE UP
COMBINE DOWN

Active

Environment: Active only when a multiple color level and/or contour line graphic product is displayed on the selected screen.

Options and

Parameters: Screen (left or right)
Combine Level 1, 2, 3, 4, or 5 (1 is no levels combined)

Defaults: None

Operation: Whenever a graphic product with multiple color or contour line levels is displayed, the levels may be combined together by factors of 2, 3, 4, or 5 (every 2, 3, 4, or 5 levels combined together into a single level). When combining takes place for colors, all levels combined will be left as the color of the highest intensity of each combined color group. When combining takes place for contour lines, every other line is removed in the case of combine 2; 2 out of 3 lines are removed (from the original) in the case of combine 3, etc. Note that when switching from one combine level to another (either up or down), some colors or contour lines which were previously removed will reappear. To perform combine, the COMBINE UP function should be selected, repeatedly, until the desired combine level is reached. It will start at 2, then go to 3, etc., and stop at 5. The current combine level is always displayed in the status area next to the magnification factor and filter level on the selected screen.

The COMBINE DOWN function is only operable after the COMBINE UP function has been used to combine levels. COMBINE DOWN will sequentially decrease the combine level with each repeated selection, and cease to have an effect when the combine level reaches one (no combine).

Whenever a product is displayed or redisplayed, it will revert to its default, non-combined state.

Notes: This function will be remembered through a time lapse sequence, as well as for the PRODUCT FORWARD and PRODUCT BACK functions. It will be remembered also for screen manipulation functions such as recenter, magnify, filter, gray scale, as well as map or overlay alterations.

The black background (below threshold) color is not included in the Combine function.

The RF (Range Folded) data color and ND (No Data) data color, if they exist, are not included in the Combine function.

The Zero data level color for velocity products, if it exists, is not included in the Combine function.

The Combine function starts combining at the lowest intensity data level. If the number of levels on the color bar available for combining is not divisible by the currently selected number of levels for combining, then fewer than that number will be combined for the most intense levels.

Section 6-7: Gray/Color Scale Function

For every graphic product with a color scale (color bar) there exists a screen-displayable gray scale that is separately definable in adaptation data for each product. In theory, it would be possible to place an alternate color scale in lieu of the gray scale, for any product, since there are no restrictions that the colors be actually gray. This gray scale is not necessarily the hard copy gray scale which will be produced on the printer if the screen is in gray scale. That, in fact, will always be a gray scale which is computed from the screen gray scale for each product, by setting the blue and green components equal to the red.

The purpose of this function is twofold. First, it will allow the highlighting of displayed overlays, which will remain in color when this function is selected, and second, it may aid in product analysis for singly displayed or time lapse products.

The operation of this graphic tablet toggle function is described in Section 6.7.1.

6-7.1 Gray/Color Scale.

Selection:

Graphic Tablet (only): GRAY/COLOR SCALE (toggle)

Active

Environment: Active whenever a multicolor graphic product, which has a gray scale assigned to it in adaptation data, is displayed on the selected screen.

Options and

Parameters: Toggle state of the function
Screen (left or right)

Defaults: Color Scale

Operation: When a color graphic product is selected for display, it is always displayed in its full color scale (default). This screen manipulation function may be selected to turn all the product colors to varying shades of gray. These shades normally have intensities corresponding to the intensities of the colors they represent. The product may be returned to its color scale by reselecting this toggle function or selecting the RESTORE DISPLAYED PRODUCT function. The state of this function will be retained for recentering, magnification, filtering, combining, or any other screen manipulation of the current product.

One purpose of this function is to better observe overlay products, which may be added without restriction to geographic products (provided they are stored for the same generation time). When the product is changed to gray scale, the overlays and background maps will remain in their normal colors, thus making them stand out.

Notes: Gray Scale may be selected during time lapse and will be retained throughout a time lapse loop sequence of frames.

PRODUCT FORWARD and PRODUCT BACK selections will also retain Gray Scale or other color manipulation functions for the new displays.

Gray Scale will operate in conjunction with the Filter and Combine and blink color level functions.

Section 6-8: Restore Displayed Product Function

Most of the functions listed in [Section 6-2: Quarter Screen/Full Screen Functions](#) through [Section 6-11: Background Map Display Functions](#) may be applied simultaneously to a displayed product. If it is desired to return the display to its original state when the product was first displayed, this function is available to eliminate the need to deselect each screen manipulation separately. This function, available on the graphic tablet, is described in Section 6.8.1.

6-8.1 Restore Displayed Product.

Selection:

Graphic Tablet (only): RESTORE DISPLAYED PRODUCT

Active

Environment: Active whenever a graphic product on the selected screen has been recentered, magnified, filtered, combined, gray scaled, had default background maps or overlays changed, maps off, overlays off, product off, blinking of a color level, or stop blink of overlays.

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: This function will restore the currently displayed geographic product (the same product parameters) on the selected screen to its original default display state. All screen manipulation functions will be reset to the following set of defaults: preset center, 1X magnification, no filter, no combine, color scale product, default background maps and default overlays, maps "on", overlays "on", product "on", no blink of color level, and blink of overlays. Default maps and overlays are determined by adaptation data. Any combination of these functions may be active, and any that are will be reset when this function is selected.

Notes: This function will operate on time lapse displays which have been screen manipulated.

Section 6-9: Preset Center Function

The normal use of this function would be to both set the currently selected cursor coordinate and redisplay the product (at the currently selected magnification) at the radar. The coordinate for this function is defined in adaptation data as a latitude, longitude. If this coordinate were not set at the radar, then every geographic product displayed prior to recentering would be centered at this location with part of the product data moved off the screen. For a predefined cursor coordinate other than the radar, such as a PUP location, it is suggested that the "home" cursor location be used.

The use of this graphic tablet function is described in Section 6.9.1.

6-9.1 Preset Center.

Selection:

Graphic Tablet (only): PRESET CENTER

Active

Environment: Always active except in graphic edit mode on the selected screen.

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: This function will redisplay the presently displayed geographic product on the selected screen at the present magnification, centered at a specific geographic location. This location is contained in adaptation data as a latitude, longitude coordinate which would normally be set at the radar location. It could also be set at the PUP or other geographic location, but that use is not recommended.

This function will cause the currently selected cursor coordinate to be set at this location and to move any displayed cursors to this location. Thus, subsequent magnification on either screen will be at this center.

Notes: If there is no geographic product displayed on the screen selected for this function, there will be no effect on the display other than the position of the cursor, the cursor coordinate readout (on either screen), and the last selected cursor coordinate.

This function will not change the magnification of the previously displayed product, nor will it affect any alterations caused by the Filter, Combine, blink color level, or Gray/Color Scale functions. Whatever maps and overlays were last displayed will also be retained on the recentered product.

Non-Associated RPG generated products will default this location to the radar center of the product since this location is only defined in the local coverage area in latitude, longitude coordinates.

When the PRESET CENTER function is selected, the graphic tablet puck is in the function selection area of the tablet and not in the cursor tracking area. Subsequent to the selection of this function, the cursor will track the puck whenever it is moved back into the cursor tracking area. However, that does not alter the last selected cursor coordinate until the tablet puck button is depressed in the cursor tracking area.

Section 6-10: Overlay Display Functions

All overlay display functions are contained in the overlay area of the graphic tablet. The overlays are products requested and obtained separately from the products that they can be overlaid on. In order to be overlaid onto another product, the RPG, volume scan date, and volume scan time must match. There is no way to overlay products for which these three parameters do not match.

Product overlays are Hail, Mesocyclone, TVS, Storm Track, SWP, and Combined Shear Contour.

The overlay which is generated as a part of certain products by the RPG is Attributes. Products for which attributes are available as an overlay are Composite Reflectivity, Hail, Meso, TVS, Echo Tops Contour, Combined Shear Contour, and Storm Track. With the exception of Composite Reflectivity and Echo Tops Contour, these products may also be overlaid on other products. When one of these is the last selected overlay for a product, its attributes will automatically be added, replacing any previous attribute list. Attributes refer to storm attributes and are displayed along the top of the product display area on the graphic screen. **Depressing the puck button while the cursor is positioned on an attributes table will set the last selected cursor position to the azimuth and range indicated in the table for the selected storm. This is essentially the same as selecting that storm on the product itself. This feature facilitates the RECENTER/MAGNIFY function as well as the CELL TRENDS function. By selecting storms from an attribute table, an operator can quickly recenter a display, or select a storm for the CELL TRENDS function, even when the selected storm is not within the display window.**

Annotations are an overlay which may be added to any graphic product (see [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#)). However, they may be sent to the RPG only from an RPGOP (a PUP with its RPGOP flag set in adaptation data, category 5). These are available for display at the RPGOP or any PUP which has received that product from the RPG after the RPGOP has annotated the product and sent the annotations back to the RPG. Annotations are available only for the specific product for the specific volume scan version that they were added to.

The two Alert Area overlays and the Current Cross Section overlay are always available for overlay on any geographic display (an exception is a geographic product from a non-associated RPG) or even onto a blank screen. The Alert Areas are defined in adaptation data and may be modified by the method described in [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#). When an Alert Area is displayed overlaying a product, only the selected area outlines appear. Alert area 1 appears in yellow. Alert area 2 appears in cyan blue. When displayed on a blank screen, or with background maps only, the alert grid of 58 by 58 boxes also appears, in red. The Current Cross Section overlay, appears in cyan blue as a straight line with a circle at each end defining the current default cross section for requesting cross section products from the RPG.

Any combination of overlays may be displayed simultaneously.

The adaptation data includes a list of overlays automatically displayed for each product. Manual selection of overlays are described in paragraph [6-10.1 Overlay Select](#).. Additional overlay manipulation functions are described as follows:

[6-10.2 Overlays Off/On.](#)

[6-10.3 Overlays Erase.](#)

[6-10.4 Background Map, Overlay Delete.](#)

[6-10.5 Stop Blink.](#)

6-10.6 Page Attributes.

See [Chapter 8 Status And Alerts](#) for a description of the "Overlays Displayed" and "Overlays Unavailable" status lines on the graphic displays.

6-10.1 Overlay Select.

Selection:

Graphic Tablet (only): Any Overlay listed in the "Overlay" area of the tablet, e.g., HAIL, MESO, TVS, etc.

Active

Environment: These are active when a geographic product is displayed on the selected screen (not a time lapse frame), when it is not in graphic edit mode, and when the selected overlay product is in the data base for the same volume scan of generation as the main displayed product.

Options and

Parameters: Screen (left or right)
Overlay to display

Defaults: Geographic products are displayed with a "default" set of overlays determined by adaptation data (paragraph [13-1.4 Product to Overlay Associations.](#)).

Operation: When one of these overlays is selected and there is a geographic product already on the screen (may be another overlay product), this overlay will be added to the display as an overlay. This is providing the overlay data for the same volume scan as the main displayed product is available in the PUP data base.

Whatever the current geographic display center and scale of the main product are, the overlay will be correspondingly centered and scaled for an exact geographic match on the screen. If the product is subsequently recentered or magnified, the overlays will be correspondingly altered.

If there is a non-geographic product (one for which a background map cannot be displayed) on the selected screen, then overlay selections excluding annotations will likewise be disallowed.

If the screen is cleared when an overlay product is selected as an overlay, the selection will be disallowed.

To display the overlay as a product (for those that are products) it should be selected from the Product Selection area of the graphic tablet. As many overlays as desired may be added to a geographic display, without conflict with any other previously displayed overlays or background maps, since there is total independence of all overlays and background maps.

When overlays are overlaid on a displayed product by selection or default, then a list of the overlays displayed, and those requested but unavailable, is displayed on status lines in the work area on the right side of the graphic screen.

No other identification information of these overlays, save the storm attribute information at the top and separate color bars for the contour overlay, is displayed.

If there is no qualifying data on an overlay product to be displayed e.g., no storms, then the attribute area on the top will note the lack of the presence of overlay symbology for the last selected overlay.

The precedence of overlay symbology over other overlay symbology on the display is determined in adaptation data and not by the order in which overlays may be added, e.g., the overlay with the highest precedence will always appear on top of anything else at that location on the display.

An overlay which is already displayed may be reselected for the purpose of having its storm attributes displayed at the top of the screen. If that overlay is then deselected, the attribute area will clear (see paragraph [6-10.4 Background Map, Overlay Delete.](#)).

Notes: Overlay selection is available for the currently selected quadrant in quarter screen mode.

Overlay selection is disallowed on time lapse frames. If it is desired, then the frame must be selected separately as a product in the normal manner.

Overlays added or deleted to the default set will be remembered for the PRODUCT FORWARD and PRODUCT BACK functions assuming, of course, there is additional overlay data for the corresponding volume scan times.

When base products are sent prior to the completion of volume scans, their associated overlay products are generally not available yet. They will be available as soon as they are received but will not be automatically displayed unless the display is reselected. If the overlays are not yet available, the PRODUCT BACK function may be used to check the last volume scan with available overlays.

When overlays are overlaid on overlay products displayed as main products, then whatever the predefined display precedence of overlays, the overlay will appear on top of the main product. The main product may, in this case, also be displayed as an overlay to restore precedence.

When an overlay is selected, it will cause the OVERLAY OFF/ON toggle function to revert to "on" regardless of its previous state.

6-10.2 Overlays Off/On.

Selection:

Graphic Tablet (only): OVERLAYS OFF/ON (toggle)

Active

Environment: Active whenever one or more overlays listed in the graphic tablet overlay area are displayed as overlays on a geographic main product, and it is not in graphic edit mode.

Options and

Parameters: The toggle state of the function
Screen (left or right)

Defaults: The opposite of the current overlay display state

Operation: Overlays will always default to "on" whenever another overlay is displayed or when overlay data is erased.

This function will literally change the colors that all overlay symbology and text are displayed in to "transparent", making them disappear from the display and the product data behind them appear. With alternate selections, this function will toggle between normal overlay colors and transparent. After the function is selected, a feedback message will indicate the current state on the appropriate screen.

This function will not in any way alter the overlay data stored in the graphic memory.

If the overlay data is altered via an overlay select, delete, or erase function, then the overlays will automatically revert to normal colors, and this function will automatically revert to the "Overlays On" state.

Notes: In quarter screen mode this function will turn off and on all overlays in all quadrants simultaneously. The fact that this operates differently from MAPS OFF/ON is due to hardware restrictions.

6-10.3 Overlays Erase.

Selection:

Graphic Tablet (only): ERASE OVERLAYS

Active

Environment: Active whenever one or more overlays listed in the graphic tablet overlay area are displayed as overlays on a geographic main product, and it is not in graphic edit mode.

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: When this function is selected, all overlay information including storm attribute lists, all overlay symbology, and product annotation (in the image area only) will be erased from graphic memory for the selected screen. This includes all overlays displayed as defaults with the main product as well as any additional ones added manually to the display.

Notes: To restore overlays to the display after this function is executed, they may be reselected individually, or else the product may be redisplayed to get the default overlays back. Also, the RESTORE DISPLAYED PRODUCT function will restore default overlays.

This function will not alter any other screen manipulations currently in effect at the time of selection.

To temporarily turn off overlays, the OVERLAY OFF/ON function (a reversible toggle function) is more appropriate.

6-10.4 Background Map. Overlay Delete.

Selection:

Graphic Tablet (only): MAP OVERLAY DELETE

Active

Environment: Active whenever one or more background maps or overlays (displayed as overlays) are displayed on the selected screen, and it is not in graphic edit mode.

Options and Parameters: Screen (left or right)

Defaults: None

Operation: The selection of this function must immediately precede the selection of the single background map or overlay (in the graphic tablet overlay area) to be deleted. If any other graphic tablet selection other than a background map or overlay is selected subsequent to this function, it will cancel the selection of this function.

Only one background map or overlay may be deleted at a time with this function. This function must be reselected prior to the deletion of each individual background map or overlay.

The operation of this function is accomplished by erasing all the background map or overlay data in the graphic memory and redrawing all but the one deleted. This is necessary because it is impossible to selectively remove data in the same portion of memory.

Notes: No harm will be caused by selecting this function and not following it by the selection of a background map or overlay. In that case, it will simply be cancelled when another function is selected.

To remove all background maps or all overlays, use ERASE MAPS or ERASE OVERLAYS to erase them all at one time. Following this, individual background maps or overlays may be added.

Deletion of a map will cause a background map "off" state to revert to "on".

6-10.5 Stop Blink.

Selection:

Graphic Tablet (only): STOP BLINK

Active

Environment: Active whenever one or more overlay products, which contain blinking symbology, are displayed on the selected graphic screen or when the BLINK COLOR LEVEL function is active (See [Section 6-14: Blink Color Level Function](#)).

Options and Parameters: Screen (left or right)

Defaults: Whenever an overlay with normally blinking symbology is added to the screen as an overlay (not a main product), all normally blinking symbology on the screen will blink.

Operation: When one or more overlay products are displayed as overlays, with normally blinking symbology, the function will stop the blinking of all overlay symbology on the selected screen. For subsequent overlay selections (including "on/off" and "delete"), all overlay blinking will resume. In that case, this function must be reselected to stop the blinking again.

Blinking of overlay symbology will alternate between two colors, one of which may be transparent. When the blinking is stopped, via this function, the primary assigned color for the symbol will be displayed (which will never be transparent).

This function is to eliminate the annoyance of having blinking on the screen for long periods of time.

This function is also used to stop blinking when the BLINK COLOR LEVEL function is activated (See [Section 6-14: Blink Color Level Function](#)).

Notes: The RESTORE DISPLAYED PRODUCT function may be used to restart overlay blinking with a single selection. This action, however, will also reset any other screen manipulations performed on the current display such as magnification. In order to not alter the current state of other screen manipulations, OVERLAYS OFF/ON may be selected twice (once for off and once for on) to restart the blinking.

In quarter screen mode, this function will simultaneously control all overlays in all four quadrants.

When an overlay product is displayed as the main product, its symbology will not blink and this function will have no effect on it.

6-10.6 Page Attributes.

Selection:

Graphic Tablet (only): PAGE ATTRIBUTE

Active

Environment: Active whenever a graphic overlay product is displayed as a main display or as an overlay on another product, and it contains multiple pages of storm attribute text (four storms per page) displayable at the top of the graphic screen. Also active for the Composite Reflectivity attribute overlay which contains a composite of information.

Options and

Parameters: Page
Screen (left or right)

Defaults: The next page (The first page, if it exists, will always be displayed upon overlay display selection.)

Operation: If more than four storms exist on the attributes displayed at the top of the selected overlay product, they may only be displayed as multiple pages since a maximum of four storms' information can fit on a page. This function will page the data forward, one page per function selection.

After the last page is displayed, this function will cause the data to return to the first page again. Thus, a continuous forward cycle is possible.

The page number and total number of pages are included on the display for use in conjunction with this function.

Notes: Selection of this function will not alter in any way the data in the graphic product display area.

To change the category of information displayed in the storm attribute area, the overlay whose attribute information it is desired to display should be selected. This is true whether that overlay is already displayed in the product area or not. The last selected overlay is the one whose attributes are displayed.

Additional storm attribute information is usually available on the alphanumeric terminal. This is selectable via various alphanumeric (D)ISPLAY commands: (A)LPHANUMERIC PRODUCT, (GP)GRAPHIC AND ALPHANUMERIC PRODUCT, (P)AIREN ALPHANUMERIC PRODUCT as well as some function keys depending on the current display situation and alphanumeric product queue contents. The (P)AIREN ALPHANUMERIC product command is usually the most convenient to use since it will automatically look for the alphanumeric product that matches the currently

displayed attributes on the indicated graphic screen. This pairing on the alphanumeric screen is not accomplished in auto-display graphic mode.

Section 6-11: Background Map Display Functions

All background map display functions are contained in the background map area of the graphic tablet (lower right corner). The top row of this area, along with the MAP OVERLAY DELETE function in the overlay area, contains the map manipulation functions. All boxes below these list individual maps for selection.

Selected maps will always match the particular NEXRAD Unit coverage area (RPG) from which a displayed product originated. Maps from the local NEXRAD unit area are locally stored at the PUP and always available. Maps from Non-Associated RPGs can be stored at the PUP. Maps from other RPGs can be obtained along with at least one product from that RPG. Those maps are only stored temporarily, along with products. The RPG may send only a subset of maps. This list is defined at each RPG.

Maps for up to 20 Non-Associated RPGs can be stored in auxiliary map files. The data is stored in the auxiliary map files by way of the Read Background Map File function. That function, described in paragraph [10-2.17 Read Background Map File.](#), reads from optical disk a set of map data for a specified RPG and installs the data in the specified file (2 to 21). The Read Background Map File function can also be used to read a set of maps for the Associated RPG into the Associated RPG map file.

Certain maps are not stored in the PUP data base but are created whenever selected. These are: RDA (site), RANGE RING, and POLAR GRID. The RDA map is a single small circle at the associated RDA location. The Range Ring map is a single circle outlining the product coverage area for the currently displayed product (or at 460 km (248.4 nmi) from the RDA if no product is displayed). The POLAR GRID map has multiple concentric circles around the map center with an interval which is dependent upon the coverage area (radius) of the product it is displayed with and azimuth interval spokes radiating from the map center.

The polar grid map is normally centered at the RDA, but can be moved to the last selected cursor position. In order for the polar grid map to be centered at a position other than the RDA, the map must first be displayed, deleted with the MAP OVERLAY DELETE function, then selected for display. The polar grid map will then move to the last selected cursor position. The Polar Grid Ring Interval and Angle status line (see appendix D) will always be displayed in yellow, when the polar grid map is not centered at the RDA. A polar grid map not centered at the RDA will also always be displayed in yellow provided the graphic screen map colors in protected adaption data, category 15, have not been changed. It should be noted that a change to this area of adaptation data category 15 may possibly affect the color of a moved polar grid map. Anytime background maps are re-drawn the polar grid center location will default back to the RDA location.

There are two versions of the polar grid. The first, the regular detail version, is displayed when the display coverage is 115 km (62.1 nmi) or more. The regular detail version has a product dependent circle separation and a spoke separation of 30 degrees. The second, the high detail version, is displayed when the display coverage is less than 115 km (62.1 nmi). The high detail version has a 10 nmi circle separation, a 10 degree spoke separation, and tick marks located every nautical mile along the spoke lines.

When the POLAR GRID map is displayed, the ring and spoke intervals are indicated on the right side of the display. These three maps will always be available for display with any product from any RPG. These three maps may not be edited as other maps may (see [Chapter 12 Editing Products, Annotations, Maps, Alert Areas](#)), and there is only one version available for display. Other maps may have their original or latest edited version displayed (see [Chapter 12 Section Editing Products, Annotations, Maps, Alert Areas](#)) for the local NEXRAD unit coverage area only.

Maps are composed of vectors, text and special symbols. The special symbols used in maps are a sub-

set of the 64 special symbols available for definition in extended adaptation data (paragraph [13-3.8 PUES Distribution Product Priorities \(Category 12\)](#)). [Figure 6-1. NAVAID Map Special Symbols](#) shows some sample special symbols used in the NAVAID background map.

Maps may be displayed in any combination with complete display independence from overlays. A total of 16 colors is available for maps. Each map is in a single color.

Maps, as overlays, are defaulted to products as defined in adaptation data. The graphic tablet is used to add additional maps or delete maps.

It must be noted that, for both the edited and original versions of each map, there are high and low detail versions. When displayed without a product, regardless of magnification, the low detail version is displayed (unless HIGH DETAIL is selected as an editing function). When displayed with a product, the geographic scale of the display determines which detail version of the map is used. When the diameter of the display area (or width) represents 115 km (62.1 nmi) or greater, the low detail map is used. When the display covers less than 115 km (62.1 nmi), the high detail map is used. These two versions of maps are stored and edited independently of one another. When maps are obtained from another RPG, usually both of these versions are included. In some cases, such as STATE maps, the two detail versions may be identical. In other cases, such as HIGHWAY(s), additional data may be included on the high detail version so that it would appear at high magnifications.

Background map functions are described in the following subsections:

[6-11.1 Background Map Select.](#)

[6-11.2 Background Maps Off/On.](#)

[6-11.3 Erase Background Maps.](#)

[6-11.4 Background Maps Foreground/Background](#)

Also, refer to [Section 6-10.3 Overlays Erase](#), for a description of how to delete an individual map from the display without affecting other displayed maps.

6-11.1 Background Map Select.

Selection:

Graphic Tablet (only): Any background map listed in the Background Map area of the tablet, e.g., STATE, COUNTY, HIGHWAY, etc.

Active

Environment: These are active with a clear screen or a product displayed, except a non-geographic product (one not linearly projectable onto the earth's surface), on the selected graphic screen. These are also inactive when the selected screen is in graphic edit mode.

Options and

Parameters: Screen (left or right)
Background map to display

Defaults: Each geographic product is displayed with a default set of background maps determined by adaptation data (paragraph [13-1.3 Product to Background Map Associations](#)).

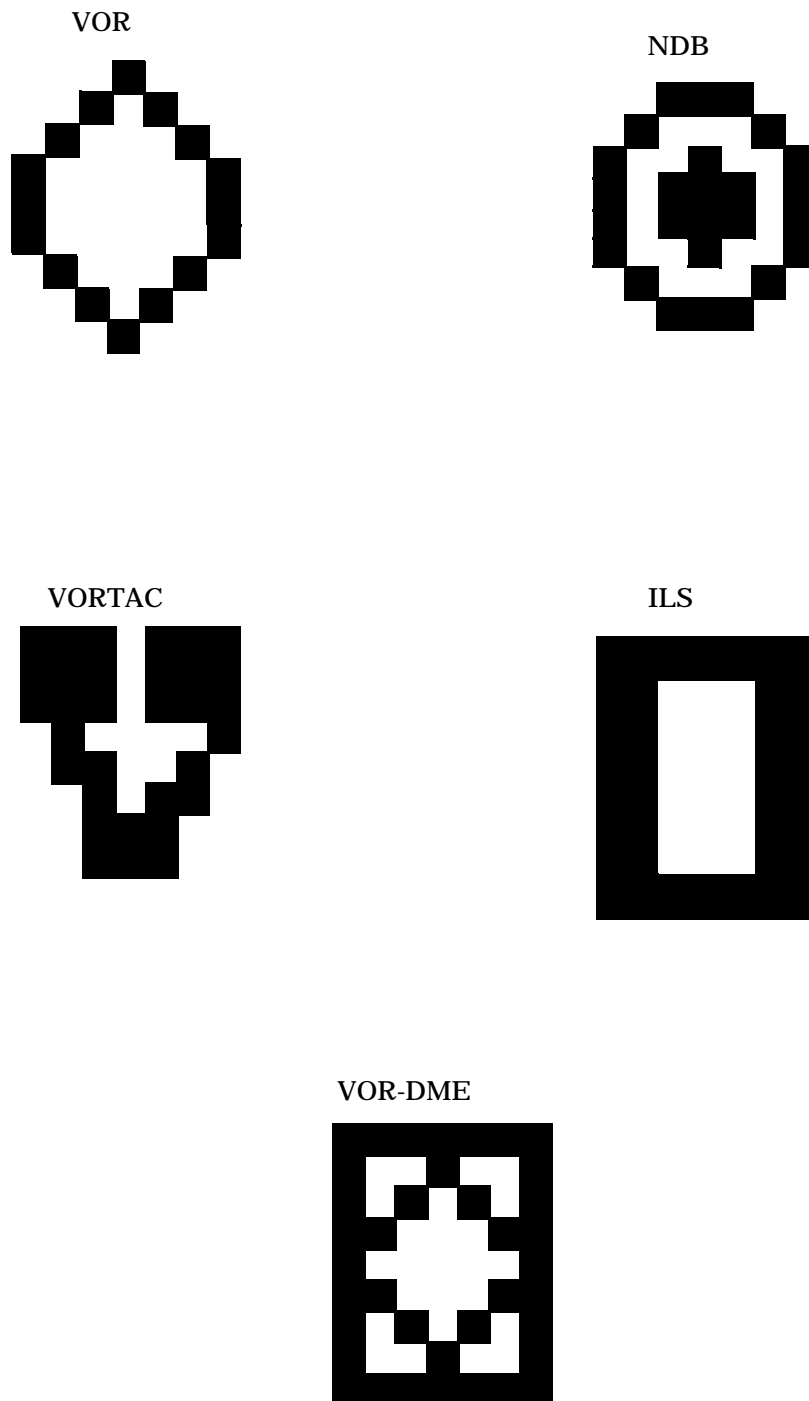


Figure 6-1. NAVAID Map Special Symbols

When a map is displayed on a blank screen, it will default to its largest coverage area 496.7 nmi (920 km diameter) display scale, centered at the radar position. When a map is displayed with a product, its center and scale will always be that of the product.

Operation: These functions will add background maps to the display. Background maps for the local NEXRAD unit coverage area are permanently stored in a file and are always available for display with a geographic product produced by the associated RPG.

For products requested from non-associated RPGs (for which maps do not reside in one of the 20 auxiliary map files), however, background maps must be obtained from those RPGs. This is accomplished by the REQUEST MAPS product parameter selection when requesting a graphic product from a non-associated RPG. The map request must be made in conjunction with a product request; however, it is by no means necessary to always request maps with products from non-associated RPGs. This is because a single set of background maps received for one product request with maps will be available in the data base for a minimum of six hours after receipt. This map set will be displayed with any geographic product subsequently received from the same RPG for a minimum of six hours without re-requesting maps. Products and background maps are automatically correlated by RPG. It is impossible to select a different background map than one for the RPG of product origin. Because non-associated RPG background maps are stored in the Product file, they will generally be deleted at the same time as the product they were received with. A check of the "Earliest Time in the Data Base" on the Status Menu of the alphanumeric terminal will indicate the current longevity of the data base to help in determining the imminent demise of non-associated RPG background maps and whether they should be re-requested if they are needed.

When a geographic product is displayed, the RPG of origin determines what NEXRAD unit coverage area background map the program will look for to display with it. It will never display a background map from a different coverage area than the product, although Range Ring, Polar Grid, and Radar Site are always available since they are not stored maps. If the required map is not available, it will not be displayed, and the graphic status line "Maps U/A:____" will be updated to indicate this status. All background maps currently requested but unavailable will be indicated via a two-letter code on this line (see paragraph [8-2.5 Background Maps Unavailable](#)).

When a product is first selected for display, it will be displayed at its normal scale with the entire product covering most of the screen or quadrant display area. The default background maps displayed with it, and any others that are added via these Map Select functions, will show the same coverage area except that the map data will be clipped outside of a square bordering the product.

At this normal scale, most products will appear round within the square map area. When a product is recentered or magnified, however, it will clip at the same boundaries as the maps, which, of course, will also be magnified.

Background maps selected via the graphic tablet may be added without restriction by the number of other maps or overlays already displayed. Each background map is preassigned one of 16 available colors in full screen mode or one of four available colors in quarter screen mode. These colors are preassigned via adaptation data. When a hard copy is made including background maps, each map will be assigned one of four available colors, also by adaptation data.

When the Polar Grid background map is selected, the ring interval in nm., as well as the radial grid line interval angle, are indicated on a status line. This map, Range Ring, as well as Radar Site, do not come from stored data but are "created" by the program and are thus always available.

The pixel-by-pixel precedence of background maps, where they intersect, is determined by the order in which they are added, with the latter having precedence over the former maps.

Product data will always have display precedence over background map data unless the MAPS FOREGROUND function is activated.

When the associated product is displayed or magnified such that the coverage area diameter is less than 115 km (62.1 nmi) then, in some cases, higher detail background maps than those displayed for larger coverage areas are displayed. These higher detail maps, if available, are displayed between the 62.1 nmi diameter and the 15 km = 8.1 nmi diameter (8x magnification of a 60 km (32.4 nmi) radius product) scales. These higher detail maps would normally be used for categories like Highways since they could contain more highways than the normal detail map. This is because, at 230 km (124.2 nmi) diameter, the highways will be four times as far apart as at 920 km (496.7 nmi) diameter, and at 15 km (8.1 nmi) diameter they will be 61 times as far apart. This reduces the probability of even one highway appearing on the screen at high magnification without added data. This higher detail does not apply to maps like Counties, since all counties must appear even at low magnifications.

If a particular background map has been edited at the PUP, then both the originally stored version and the edited version are available for display. There is an alphanumeric edit screen available from the (C)ONTROL menu which determines whether the original or the edited version will be used whenever the map is displayed. These selections may be changed at any time on the alphanumeric terminal. Only the background maps for the local NEXRAD unit coverage area may be edited locally so these selections do not apply to non-associated RPG background maps.

Notes: All background map data currently displayed may be erased with the ERASE MAPS function on the tablet.

Background maps may be individually deleted by selecting the MAP OVERLAY DELETE function prior to the selection of the background map.

The GRAY SCALE function will not affect background map colors.

Background maps may also be recentered and magnified when displayed separately from a product.

6-11.2 Background Maps Off/On.

Selection:

Graphic Tablet (only): MAPS OFF/ON

Active

Environment: Active whenever one or more background maps are displayed on the selected screen (or quadrant) and it is not in graphic edit mode.

Options and Parameters:	The toggle state of the function Screen (left or right)
Defaults:	The opposite of the current map display state. Background maps will always default to "on" whenever background map data is redrawn into the graphic memory due to the display selection of a new product.
Operation:	<p>This function will change the colors of all background maps to transparent, making them completely disappear from the display. If maps had been displayed in the foreground at the time of selection of "off", the product will be completely displayed where the map had covered it. With alternate selections, this function will toggle between background maps "on" and "off". The current map on-off state, whenever it is altered, is indicated in the feedback area of the selected screen.</p> <p>This function will not alter the background map data stored in the graphic memory.</p>
Notes:	<p>In quarter screen mode, this function will control the background maps in the currently selected quadrant only. To turn maps off or on in another quadrant that quadrant must be selected first.</p> <p>The toggle state of this function will be remembered separately for each quadrant in quarter screen mode. If maps are turned off in quadrant 1, and then quadrant 2 is selected where maps are on, the toggle state of this function will automatically be on and, if selected, will turn maps off in quadrant 2. If quadrant 1 is then reselected, the toggle state of this function will be "maps off" and if selected will turn maps on.</p> <p>The RESTORE DISPLAYED PRODUCT function will write default maps and set them to "on" as well as perform other restoration operations.</p>

6-11.3 Erase Background Maps.

Selection:

Graphic Tablet (only): MAPS ERASE

Active

Environment: Active whenever one or more background maps are displayed on the selected screen (or quadrant) and the screen is not in graphic edit mode.

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: This function will erase all background map data from the graphic display memory, for the selected screen, when in full screen mode. In quarter screen mode this function will erase all map data for the last selected quadrant only.

Notes: To restore background maps to the display subsequent to the selection of this function, they may be selected individually or with the RESTORE DISPLAYED PRODUCT function which will restore defaults only.

Subsequent product display selections will restore the default background maps for

the selected product.

6-11.4 Background Maps Foreground/Background

Selection:

Graphic Tablet (only): MAPS FOREGD/BACKGD (toggle)

Active

Environment: Active whenever a geographic product (one with which background maps may be displayed) is displayed on the selected screen.

Options and

Parameters: Screen (left or right)
The toggle state of the function

Defaults: The opposite of the current state of the function (Background maps will always be displayed in the background whenever the product they are displayed with is first drawn on the selected screen.)

Operation: This is a toggle function which will alternate between background maps background or foreground with each subsequent selection. Upon selection, the current state of the function will be indicated as a feedback message on the appropriate screen. The toggle state will revert to "background" whenever the maps revert to being displayed in the background for a newly selected product display.

This function will establish the default for the background map foreground/background setting. That is, once selected, the toggle state will remain in that state until changed. All newly selected product displays will have background maps displayed in the foreground or background depending on the last selected state. The background map foreground/background toggle setting will always revert to foreground on PUPUP, graphic resets and software restarts.

When background maps are displayed in the foreground, they will have display precedence over all main product data displayed on the selected screen. This includes overlay products displayed as main products (selected as products, not overlays).

All displayed background maps will be placed in the foreground or background together. It is not possible to individually switch simultaneously displayed maps.

When background maps are displayed in the background, they will have the lowest precedence on the screen and be obscured by all other data on the display. Display precedence between the maps themselves is determined by the order in which maps were added. Added maps will have precedence over previously displayed maps.

When background maps are in the background or foreground, overlay data displayed as an overlay will always have display precedence over all background map data.

Notes: This function is useful in identifying the geographic location of product data which is widespread and obscures a large portion of the screen background maps displayed. It is particularly useful at high magnifications where weather data could easily obscure all or most of the display and the associated background.

Section 6-12: System Option Graphic Display Function

The option to have graphic products displayed on the screen while they are "drawing" into graphic memory is available. Normally, the screen will be blanked until drawing is completed.

To keep this option under supervisory control, the PUP password must be entered (on a blank command line) to obtain the system option menu.

The command to select this option is described in Section 6.12.1.

6-12.1 Screen Draw/Blank.

Selection:

Alphanumeric (only): <PASSWORD>,(S)CREEN,(D)RAW,
-or-
<PASSWORD>,(S)CREEN,(B)LANK

Active

Environment: Always active

Options and

Parameters: Draw or Blank

Defaults: Blank (when system is loaded or on PUP "restart")

Operation: When "draw" is selected, it will cause every product display to appear on the screen through the draw process. "Raster" type products will be drawn from top to bottom on the display. "Radial" type products will begin at an arbitrary radial and draw in a clockwise fashion, with the final radial overlapping the first in order to provide complete coverage with no gap between the final and initial radials. The data in the overlapping final and initial radials will not, in general, be identical.

When "blank" is selected, the product data will be blanked from the screen until it is drawn into graphic memory, at which time it will be switched on.

Section 6-13: Display Test Pattern Function

Graphic test patterns are provided to check the graphic subsystem hardware. They are selected via the alphanumeric terminal so that selection is not dependent upon the graphic tablet interface in the graphic subsystem. They are also on the alphanumeric because they are infrequently selected functions. Section 6.13.1 describes the selection of these test patterns as well as the use of each one.

It should be noted that each test pattern uses the entire graphic display including all product display and status areas of the screen. When displayed on one screen, the other screen should operate normally.

6-13.1 Display Test Pattern.

Selection:

Alphanumeric (only): (D)ISPLAY,(T)EST PATTERN,<id#>,<screen>

Active

Environment: Always active except when in graphic edit mode on the selected screen.

Options and

Parameters: Test Pattern<id#> (enter 0 - 12)
<screen> (enter L or R)

Defaults: Test Pattern<id#> = 0
<screen> = left

Operation: Thirteen test patterns (see [Table 6 - 1: Test Patterns](#)) are available for separate display on a graphic screen (either one) by selection of this alphanumeric command. These are used to check the Ramtek graphics subsystem as well as the graphic color monitors. Some check primarily graphics memory, some check primarily graphics processing, and some are primarily to check monitor color convergence and other display characteristics. Test pattern 10 displays 128 colors along with the six digit hexadecimal code associated with each color. It is also displayable from the Help Menu as the (SC)REEN COLORS selection.

Notes: A hardcopy color printer test pattern which looks similar to test pattern 10 for the screen may be selected from the Alphanumeric Terminal Help Menu via the "(H)ELP, (HA)RDCOPY COLORS PRINT" command. The codes for that print are customized for the printer and differ somewhat from the screen colors of test pattern 10.

Test patterns 5-11 are available for hard copy printing from the graphic tablet. These will send the screen colors to the color printer. Test patterns 0-4 and 12 are the only displays in the system unavailable for printing.

Section 6-14: Blink Color Level Function

The Blink Color Level function is provided to enable a single color level in a displayed product to stand out from the others. The color, wherever it appears in the displayed product, as well as on the color bar will blink.

6-14.1 Blink Color Level

Selection:

Graphic Tablet (only): BLINK COLOR LEVEL

Active

Environment: Active whenever a multiple color level graphic product with a color scale is displayed on the selected screen or quadrant.

Options and

Parameters: Blink color level
Screen (left or right)

Defaults: Blink Color Level = lowest level (no blink)

Operation: Prior to the selection of this function, the desired color level should be selected. This is done by positioning the cursor directly over the desired color bar box or color level text next to the color scale and depressing the puck button for that screen. The selected color level will momentarily be outlined in yellow to provide a visual feedback of the selection. This color level will be remembered for all subsequent Blink Color Level (or Filter) selections for that screen (or quadrant) until it is reselected or a new product is displayed, at which time it will default to the lowest.

Table 6 - 1: Test Patterns

TEST PATTERN NUMBER	DESCRIPTION	USE
0	Totally blank when video generator is good	Test video lookup table for all locations set to black
1	Totally blank when memory is good	Test image memory for all pixels turned off
2	Total white when memory is good	Test image memory for all pixels turned on
3	Totally blank when memory is good	Test overlay memory for all pixels turned off
4	Totally white when memory is good	Test overlay memory for all pixels turned on
5	Color bars in primary colors (red-green-blue)	Test video generators and monitors for color balance
6	Color bars in primary and secondary colors	Test video generators and monitors for color balance
7	Gray shades from black to white	Test video generators and monitors for color balance
8	ASCII character set	Test character generator
9	Special character set	Display current set of 64 special characters
10	128 colors along with the hexadecimal codes for each color 2 digits each are the Red, Green, and Blue respectively.	Check hues on monitor and get codes for various colors.
11	Grid of horizontal and vertical lines	Monitor convergence and adjustment
12	Horizontal and vertical lines in white	Test vector generator in overlay memory processor

Only one color level will blink at a time.

When a color level blinks, it will alternate the color with dark gray, unless the color is already dark gray or black, in which case it will alternate with white.

To select another color level when one is already blinking, simply select another color level on the color bar with the correct puck button for that screen, then reselect the Blink Color Level function.

This function is provided to unambiguously identify color levels in a displayed product more conveniently than by using the Filter function. It can also be used to identify levels at a greater distance from the screen, or for television or film use.

Notes: This function operates independently on the two screens and in the four quadrants on each screen in quarter screen mode, just as the Filter function does.

This function is available for main product display colors only and will not affect overlays.

To stop blinking, select the Stop Blink function (in the overlay area of the tablet) or else select the lowest value (black) color level on the color bar and reselect this function.

This function is available in time lapse.

If a blinking color level is filtered (to black), it will stop blinking but will resume blinking if unfiltered.

If the Combine function is selected after this, the color level will blink as long as it shows up as one of the Combined Colors.

This function is available when in Gray Scale. If Gray Scale is selected after this, the same level will continue to blink, but in gray.

Section 6-15: VR/Shear Display Function

The VR/Shear Display function on the tablet provides the operator a quick method of estimating several meteorological parameters when used with either a base velocity product or one of the storm relative velocity products. The parameters provided for an operator selected velocity couplet include estimates of rotational velocity, range from radar, shear and diameter of an operator selected velocity couplet.

6-15.1 VR/Shear Display.

Selection:

Graphic Tablet (only): VR/SHEAR DISPLAY

Active

Environment: Active only when a 16 data-level base velocity, storm relative velocity map or storm relative velocity region product is on the selected screen or quadrant and the product is not a low resolution time lapse frame.

Options and

Parameters: Screen (left or right)

Defaults: The last two selected cursor positions are used to define the velocity couplet.

Operation: This function, if selected while a valid velocity product is displayed, will display a feedback message estimating the rotational velocity, range from radar, shear and diameter of an operator defined velocity couplet. Before selection of this function, the velocity couplet should be defined by selecting two points to define the velocity couplet using the appropriate puck button. Once the points have been selected it is not required that they be reselected each time this function is used. The selected points are retained until another cursor position is selected, or, the PRESET CENTER function is selected. Normally, the couplet is defined by selecting the strongest inbound velocity and the strongest outbound velocity. However, it is not required that the two selected velocity values have opposite signs. It is highly recommended that this function be selected while at the highest magnification possible for the displayed product (see NOTES below). Once this function is selected, a line will be drawn on the screen between the two selected points. This line will remain displayed until the screen is cleared, the OVERLAYS ERASE function is selected, or the product is recentered.

In order to compute rotational velocity, the mid-range velocity value of the selected data level is determined. For example, if the color level selected is labeled 20 knots, that means the velocity represented by that color falls between 20 knots and the next higher color level, in this case let's use 30 knots. Therefore, the calculation for rotational velocity would use the mid-range value of 25 knots for that point. If a point is at the upper (or lower) bound of the color bar, the mid-range is determined by adding (or subtracting, in the case of negative velocity values) 5 knots. For example, if the lower bound color level selected is -64 knots, the value of -69 knots would be used in the rotational velocity calculation for that point. When an upper or lower bound value is used, the feedback message generated displays a greater than sign (>) prefixed to the rotational velocity and shear values.

The range displayed is based on the center point between the two selected points. The diameter displayed is simply the distance between the two selected points.

The following are the units and abbreviations for each item displayed in the feedback message:

Rotational velocity (VR)	knots
Range from radar (RAN)	nautical miles
Shear (S)	per second
Diameter (DI)	nautical miles

The following are feedback messages and their meanings for errors that may be generated when this function is selected:

INVALID FOR LOW RES TIME LAPSE -- The product on the screen is a low resolution time lapse frame. The Vr/Shear function can not be used on a low resolution (high speed) time lapse frame. The reduced data resolution would yield inaccurate results.

INVALID FOR TIME LAPSE PRODUCT -- The product on the screen is an inactive time lapse frame. The Vr/Shear function can not be used on a time lapse frame that has been left on the screen after time lapse mode has ended. It can, however, be used on an active, normal resolution time lapse frame. Of course, it is recommended that the display be halted before selecting the velocity couplet.

VR/SHEAR MUST USE BASE VEL, SRM, SRR -- The product on the screen at the time the VR/SHEAR DISPLAY function was selected is not valid for use with this function. Only 16 data-level base velocity, storm relative mean radial velocity map (SRM) and storm relative velocity region (SRR) products are valid with this function.

VR/SHEAR MUST USE LINE LENGTH < 27NM -- The two points selected to define the velocity couplet are too far apart. The points must be within 27 nautical miles of one another.

VR/SHEAR CANNOT USE RF DATA -- One or both of the points selected to define the velocity couplet are in a range folded data area. Velocity values are indeterminable in range folded data areas. Reselect the points ensuring they lie in a valid velocity data region.

VR/SHEAR CANNOT USE ND DATA -- One or both of the points selected to define the velocity couplet are in a no data (black) area. Reselect the points ensuring they lie in a valid velocity data region.

VR/SHEAR DIAMETER TOO SMALL -- The two points selected have the same geographic coordinates (within the resolution of the graphic tablet). Reselect the points ensuring they are spaced apart from one another.

Notes:

It is highly recommended that the product used in association with this function be magnified as high as possible before selecting the two points (recall that the SRR product can not be magnified). This will help ensure the accurate selection of the maximum velocity values. It will also ensure consistency in rotational velocity and shear estimates when applying points selected at one magnification to a product displayed at another magnification. This is due to the fact that the same geographic pixel positions applied at 1X magnification may yield a different color value on the display when applied to the same product at 8X magnification.

In order to prevent falsely high shear values when working at long distances from the radar, the diameter value is limited to be no smaller than one beamwidth. Therefore, selection of two points that are geographically different, yet less than one beamwidth apart, will cause the software to change the diameter to one beamwidth.

Section 6-16: Cell Trends Display Function

The Cell Trends Display function on the tablet can be used to display a graphic representation of the trend, or history, of several meteorological parameters for an operator selected storm cell. The current, and up to 9 previous volume scans may be included, based on the data available from the RPG.

6-16.1 Cell Trends Display.

Selection:

Graphic Tablet (only): CELL TRENDS

Active

Environment: Always active except in edit mode and parameter mode on the selected graphic screen.

Options and

Parameters: Screen (left or right)

Defaults: The last selected cursor position is used to determine the storm cell of interest.

Operation: This function will display a set of four graphs on the selected screen. These graphs depict the trend of several meteorological parameters for an operator selected storm cell. The parameters for which trends are supplied are: storm top and base, height of the maximum reflectivity, height of the storm cell centroid, probability of hail, probability of severe hail, cell-based VIL, and maximum reflectivity. All of these parameters are defined by the Storm Cell Identification and Tracking (SCIT) and Hail algorithms.

In order for this function to work properly, the following must be true:

- 1) The operator must first select a storm cell of interest using the puck. This is accomplished by selecting a point near a storm cell on any geographic product from the volume scan of interest. The selected point must be within 2 nautical miles of the storm cell centroid. The storm cell centroid is identified by a circle with an 'x' in the center which is displayed as part of the Storm Track Information product and overlay. Failure to select a position within 2 nautical miles of a storm cell centroid will result in the display of this feedback message: SELECTED CELL NOT FOUND.

- 2) The Storm Structure alphanumeric product, (product mnemonic = SS, product ID number = 62) having the same volume scan time as the product on which the above selection was made, must be in the PUP data base. This is because the data used to build the cell trends display is part of the Storm Structure product. For this reason, if trend information is desired routinely, the SS product should be included on the RPS list, as well as in one-time requests to non-associated RPGs. Failure to have the needed SS product in the PUP data base will result in the display of this feedback message: CELL TREND DATA UNAVAILABLE.

The cell trend display is not a quarter screen display, although the two appear similar. It is also not a full screen product display, therefore, product manipulation functions, such as magnification, are not valid. The cell trends display is treated more like a test pattern, similar to the NEXRAD Unit Status display. The colors used to draw the graphs are not operator selectable. Once the cell trends display appears on the screen, the REDISPLAY LAST PRODUCT function can be used to redisplay the product from which the storm cell centroid was selected. If it is desired to retain a full screen product display for additional storm cell centroid selections, it is suggested

that, initially, both screens contain a storm track product or overlay from the volume scan of interest. Then, selection of the storm cell centroid can be made on one screen while the CELL TRENDS function is selected on the other screen.

The work area on the right-hand side of the cell trends display contains the cell ID and its azimuth and range from the radar. There is also a graphical representation of the cell's location. This appears as a cyan-colored range ring with a white circle in the center that represents the RDA position. The range ring is at 248 nautical miles. The volume scan times available for the trend information are also listed. Up to 10 volume scan times may appear; the first time is always the current volume scan time. Volume scan times for which the selected storm cell existed are displayed in white. Volume scan times for which the selected storm cell was not identified by the RPG are displayed in gray.

In the cell trend graphs the current volume scan time will always be at the right-most end of the x-axis, however, the four earlier times may not be actual volume scan times. Instead, the four earlier times are spaced at even intervals. This ensures a more accurate representation of the trend data. If the intervals between each volume scan time are not all the same, the times at the bottom of the x-axis will not match the volume scan times. The data points are always plotted at their corresponding volume scan time positions.

Any trend data that exceeds the maximum value along the y-axis will be truncated so that the symbol plotted appears at the maximum value position.

The following describes the four cell trend graphs:

TOP-BASE/DBZM HT/CENT HT:

Y-axis: 0 to 50 thousand feet above mean sea level

X-axis: RDA clock time

Data

Plotted: TOP-BASE: Storm cell top and base are represented by a vertical white line, one pixel wide, with end points at the storm cell top and storm cell base. If the storm cell base was detected on the lowest elevation, a downward pointing arrowhead is displayed at the bottom of the line. Similarly, if the storm cell top is detected on the highest elevation, or, the top is greater than the highest value on the y-axis, an upward pointing arrowhead is displayed at the top of the line. The upward arrowhead is also used if the height of the storm cell top exceeds the maximum value along the y-axis. The dBZ value used to determine the storm cell top and base is determined by RPG adaptation data.

DBZM HT: The height of the maximum dBZ value within the storm cell is represented by a yellow, 4 pixel diameter circle. Adjacent circles are connected by a yellow line.

CENT HT: The height of the storm cell centroid is represented by a magenta diamond-shaped symbol. Adjacent symbols are connected by a magenta line.

POSH/POH

Y-axis: Probability value in percent.

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X-axis: RDA clock time.

Data

Plotted: POSH: The probability of severe hail (hail diameter greater than or equal to 3/4 inch) represented by a green, 4 pixel diameter circle. Adjacent circles are connected by a green line.

POH: The probability of hail (of any size) represented by a white diamond-shaped symbol. Adjacent symbols are connected by a white line.

Note: The maximum processing range of the Hail algorithm may be less than that of the SCIT algorithm. Therefore, a storm cell may be identified by the SCIT algorithm but be located outside the Hail algorithm's processing range. In this case, no POSH or POH value will be plotted for that volume scan.

CELL BASED VIL

Y-axis: Kilograms of liquid water per square meter.

X-axis: RDA clock time.

Data

Plotted: The vertically integrated liquid water content of the selected storm cell.

MAXIMUM REFLECTIVITY

Y-axis: decibels of reflectivity.

X-axis: RDA clock time.

Data

Plotted: The maximum reflectivity value detected in the selected storm cell.

Chapter 7

PUP Control/Training Mode

PUP control and training mode functions are accessible via the (C)ONTROL and (M)ONITOR PERFORMANCE menus on the alphanumeric terminal.

The following subsections are included for control and training mode:

[Section 7-1: Reinitialize Graphics](#)

[Section 7-2: Audible Alarm Test](#)

[Section 7-3: Restart PUP](#)

[Section 7-4: Shutdown PUP](#)

[Section 7-5: Communication Line Control](#)

[Section 7-6: Training Mode Start](#)

[Section 7-7: Training Mode Resume](#)

[Section 7-8: Training Mode End](#)

[Section 7-9: Monitor Performance Begin and End Monitoring](#)

[Section 7-10: Background Map Version Select](#)

In addition to these functions on the Control menu, the use of the WER Plane Assignment edit screen is described in paragraph [4-1.2.6 WER Elevation Angle to Plane Assignments Product Parameter Selection \(Graphic and Alpha\)](#)..

Section 7-1: Reinitialize Graphics

Selection:

Alphanumeric (only): (C)ONTROL,(REI)NITIALIZE,(G)RAPHICS or C;
Since this is the first entry on the (C)ONTROL menu, it will be used as the default (;).

Active

Environment: Always active

Options and

Parameters: None

Defaults:

No parameters

Operation:

This function is available for use under any condition which causes the RAMTEK graphic processor to "hang". In most cases, the graphic processor will be reset automatically by the PUP software after a time out period. This function is available because in some cases, it can speed up the reinitialization process when selected prior to automatic reset. Symptoms of this condition are when the alphanumeric terminal operates, but neither the graphic tablet (with the exception of cursor movement) nor the graphic displays respond. The System Status Message "Graphic System Time Out", will appear at the alphanumeric terminal just prior to an automatic graphic reset.

This is not a normal condition but may result from bad adaptation data, e.g., background maps, bad product data from an RPG generated product, or from hardware problems, either in the RAMTEK graphics or in the hardcopy device.

Operation of this function will normally take 10 to 15 seconds. Successful completion is characterized by both graphic screens clearing and the clock/date line, as well as a few of the status lines, being updated and redisplayed on both screens. The graphics subsystem should operate properly following this. It may be necessary to perform this request twice.

Notes:

If this function is unsuccessful due to hardware problems or a powered off graphic system then one of the following system status messages could appear: "Graphics Unable to Reset," or "Graphic Sys Unavailable."

Section 7-2: Audible Alarm Test**Selection:**

Alphanumeric (only): (C)ONTROL,(A)UDIBLE ALARM TEST

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Operation: This will cause the PUP Audible Alarm, which is used for weather alerts, to sound for ten seconds. First, the normal tone should sound for five seconds, then a second tone for MESO and TVS alerts should sound for five seconds, then the audible alarm will automatically be placed back into active service for weather alerts. If no tone is heard, check the on/off switch and volume control first before contacting a hardware technician. This test may be repeated as often as necessary.

Section 7-3: Restart PUP

Selection:

Alphanumeric (only): (C)ONTROL,(RES)TART PUP

Active

Environment: Active only after a shutdown has been performed.

Options and

Parameters: None

Defaults: None

Operation: The restart function will bring the PUP system from a shutdown to a running initialized state. In conjunction with the shutdown function, this function affords the user the ability to bring the system to an initialized state. This includes the reinitialization of all operational parameters including RPS list replacement from adaptation data, alert area and category reinitialization, etc.

Successful completion of this function is characterized by the clock/date line, as well as a few of the status lines, being updated and displayed on the graphic screens and the main menu appearing on the alphanumeric terminal.

Section 7-4: Shutdown PUP**Selection:**

Alphanumeric (only): (C)ONTROL,(S)HUTDOWN,(N)ORMAL
(C)ONTROL,(S)HUTDOWN,(I)MMEDIATE

Active

Environment: Always active

Options and

Parameters: Normal or immediate

Defaults: None

Operation: This function is available for use when the operator wants to shutdown the PUP system. A "normal" shutdown will notify PUES and Other Users and allow five minutes for completion of transmission and for disconnection of communication lines before the actual shutdown occurs. An "immediate" shutdown will instantly shut down the system.

Successful completion is characterized by both graphic screens clearing and instructions for restarting the system appearing on the alphanumeric terminal.

Note: When shut down, the system must be in an idle state so that it can recognize the restart command. This function might be useful as a way to conveniently disconnect all communication lines, preserve the data base, and clear the graphic screens.

Section 7-5: Communication Line Control

Selection:

Alphanumeric (only): (C)ONTROL,(C)OMLINE,(C)ONNECT,<LINE#>
(C)ONTROL,(C)OMLINE,(D)ISCONNECT,<LINE#>

Active

Environment: Always active

Options and

Parameters: Connect or Disconnect

Defaults: None

Operation: This function will make requests to connect or disconnect communication lines. When a connection request is made, the line will be enabled and the connection will be pending until the actual hardware connection can be made. Whether a hardware connection is made is dependent upon whether the physical line is there and whether the other system to be connected on the other end is able to make the connection. Once a connection is made, a disconnection request may be made for that communication line. The disconnection will be immediate if the line to be disconnected is in fact connected. The communications status display will then indicate that the line is disabled.

Disconnection is the only means to guarantee stoppage of communications over a communications line, although outgoing communications may be discontinued by terminating distribution through normal means, e.g., disallowing any RPS product for distribution.

To determine which line is used for which purpose, consult the Narrowband Line Definition Edit Screen from the Extended Adaptation Data Menu.

Note, that for dial-up lines (out or in), a (C)ONNECT command means that the line is enabled for connection and a (D)ISCONNECT command means that the line is disabled for connection. The actual connection is not made until a request goes out or a call comes in.

Section 7-6: Training Mode Start**Selection:**

Alphanumeric (only): (C)ONTROL,(T)RAINING MODE,(C)ONNECTED RPG
(C)ONTROL,(T)RAINING MODE,(D)ISCONNECTED RPG

Active

Environment: Always active except when training mode is already running.

Options and

Parameters: Connected or disconnected (to associated RPG)

Default:

None

Operation:

This function will start training mode which will read products in from a PUP archive optical disk simulating products received from an RPG. Products are read from optical disk simulating real-time operation. Therefore, after products of the first volume scan time period are stored, the next product will not be read until the product volume scan time interval between the last product stored and the next product to be read has elapsed. If the next product on optical disk was generated prior to the last read in, the product will be immediately read. If the interval is greater than 15 minutes, the next product will be read five minutes from the time the last product was stored.

During disconnected RPG training mode nothing will be received from the RPG or distributed to PUES or Other Users. The PUP will be completely isolated from the RPG. This would normally be selected in a training center environment where there is no RPG available. During connected RPG training mode, only weather alerts and their associated products, if any, will be received from the RPG. These alerts will be activated normally, but will not automatically terminate training mode. This is left up to the operator. Distribution of products to PUES and Other Users will be disabled during training mode to prevent unsuspecting users from receiving unexpected products.

When selecting products from the graphic tablet during training mode, the latest product stored from optical disk of the type selected will be the latest received for display, not the latest generated that is stored in the data base, as in normal mode.

During training mode, all functions are active except for the following: product request from the RPG, communication line control, PUES and Other User distribution.

Section 7-7: Training Mode Resume

Selection:

Alphanumeric (only): (C)ONTROL,(T)RAINING MODE,(R)ESUME

Active

Environment: Active only when an optical disk, being read for training mode, has reached the logical end of disk (when END OF DISK message appears on system status lines and alphanumeric feedback line in training mode).

Options and

Parameters: None

Defaults: None

Operation: This function is used to resume training mode when the optical disk has reached its end of data and has been replaced with another disk. During training mode, when an optical disk reaches its end of data, the terminal will beep and a message indicating END OF DISK will appear on the feedback and status lines. To continue training mode a new optical disk must be inserted into the drive, placed on-line, and training mode resume selected. This will cause the PUP system to pick up where it left off in training mode with the new optical disk.

Note: "End of disk" does not necessarily refer to the physical end of disk but usually to the place on the disk where data was last written.

Optical disks from different PUPs may be used in one training mode session with this function.

Section 7-8: Training Mode End**Selection:**

Alphanumeric (only): (C)ONTROL,(T)RAINING MODE,(E)ND

Active

Environment: Training mode must be presently active

Options and

Parameters: None

Default: None

Operation: This function is used to end training mode if it is active. If disconnected RPG training mode is active, the End Training Mode function will automatically make a request to reconnect normal RPG communications, assuming the communication lines were previously enabled. If either type of training mode is ended, normal communications to PUES and Other Users will resume if the appropriate lines were previously left enabled. This is true regardless of the connection state of these lines previous to entering training mode.

Successful completion of this function is indicated by a message on the system status lines indicating that training mode has ended.

Section 7-9: Monitor Performance Begin and End Monitoring

Selection:

Alphanumeric (only): (M)ONITOR PERFORMANCE,(B)EGIN MONITORING
(M)ONITOR PERFORMANCE,(E)ND MONITORING

Active

Environment: Always active

Options and

Parameters: On or off

Defaults: None (This function will be off when the system is loaded.)

Operation: This function will turn performance monitoring on or off. Turning on monitor performance will begin the recording of monitor performance data until monitor performance is ended, or when a shutdown occurs. The monitor performance data will be updated at the end of each monitor performance period. (This period is defined via the (M)ONITOR PERFORMANCE menu.) Turning off monitor performance will stop the recording of monitor performance data. Performance monitoring will stop automatically if it is left to run for more than 99 monitor performance periods. This maximum of 99 is due to the size restriction of the Performance Monitor file on disk. A status message will be generated when the performance monitor function is ended either manually by operator command, or automatically when the file fills up. This function should only be turned on when needed and turned off when not needed. This is due to the fact that this function will slow the operations of the PUP system and cause messages to be displayed on the system console once per monitor performance period. For more information on monitor performance see [Section 8-1.6 Monitor Performance Display..](#)

Section 7-10: Background Map Version Select**Selection:**

Alphanumeric (only): (C)ONTROL,(B)ACKGROUND MAP VERSION
(goes to Background Map Version edit screen)

Active

Environment: Always active

Options and

Parameters: None

Default:

None

Operation:

This function will allow the user to select the version (original or modified) of each type of background map. When this function is selected, the Background Map Version edit screen will appear on the alphanumeric terminal with the cursor positioned under map number one. (The map titles are listed on the screen with associated numbers). Placing an "O" under a map number will cause the original version of that map to appear whenever that map is displayed. Placing an "M" under a map number will cause the modified version of that map to appear whenever that map is displayed. Placement of any other letter under a map number will result in an error. Once the user is finished with the edit screen, the Return key must be depressed to save the map version indications. This operation may be repeated as often as desired.

Note:

This also determines the version of the background map data that is distributed to Other Users by the PUP.

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Chapter 8

Status And Alerts

In general, there are two types of status and alerts: those that are selected and those that are automatically displayed. This section describes both. Operator selected status is described in the following subsections:

- 8-1.1 NEXRAD Unit Status.
- 8-1.2 Types of Products Available in PUP Data Base.
- 8-1.3 Products in PUP Data Base (by ID Number).
- 8-1.4 Earliest Time in PUP Data Base.
- 8-1.5 RPG Products Available.
- 8-1.6 Monitor Performance Display.
- 8-1.7 System Status.
- 8-1.8 Status of Archive.
- 8-1.9 Communications Line Status.
- 8-1.10 Status of Background Maps.
- 8-3.2 Alert Status Display.

All of the above may be selected via the alphanumeric (S)TATUS or (M)ONITOR PERFORMANCE commands (menus). The NEXRAD Unit Status is also available as a graphic display, selected from the graphic tablet.

Automatically displayed status indicators are of five types: (1) graphic display status indicators applicable to each separate graphic display, (2) the graphic product queue indicator displayable on both graphic screens simultaneously, (3) system status and RPG product request status displayable on all three screens simultaneously, (4) the alphanumeric product queue indicator displayable only on the alphanumeric display and (5) NEXRAD unit status (8.1.1). Note, that the function selection indicator and feedback lines are not described in this section, but mostly in Sections 1 and 2, as they are responses to operator selections rather than status indicators.

The graphic display status indicators are described in the following sections:

- 8-2.1 Magnification/Filter/Combine Level.
- 8-2.2 Overlays Displayed.
- 8-2.3 Overlays Unavailable.
- 8-2.4 Polar Grid Ring Interval and Angle.
- 8-2.5 Background Maps Unavailable.

8-2.6 Time Lapse/Auto Display Rate.

8-2.7 Cursor Height and Coordinates.

The graphic product queue indicator, which may be displayed on both graphic screens simultaneously, is described in the following section:

8-2.8 Graphic Product Queue Indicator.

The status lines, which may be displayed simultaneously on all three screens, are described in the following sections:

8-2.9 System Status Lines.

8-2.10 RPG Product Request Status Lines.

The alphanumeric product queue indicator which may be displayed on the alphanumeric screen only, is described in the following section:

8-2.11 Alphanumeric Product Queue Indicator.

Automatically displayed weather alerts appear on all three screens. Weather alerts are described in the following section:

8-3.1 Alert Status Lines (Weather Alerts).

Section 8.3.1 describes the automatically displayed alert lines. Weather alert products may be displayed as products (see Chapter 4 and Chapter 5). All alerts are filed in the system status file and displayable with that file (8-1.7 System Status.).

Section 8-1: Status Menu Options

Sections 8.1.1 through 8.1.9 (as well as 8.3.2) describe the options listed on the status menu.

8-1.1 NEXRAD Unit Status.

Selection:

Graphic Tablet: NEXRAD UNIT STATUS

Alphanumeric: (S)TATUS,(N)EXRAD UNIT,
-or-
S;

This is also displayed automatically on the left* graphic screen if the product availability status changes. *See operation section below for exceptions.

Active

Environment: Always active except in graphic edit mode for the selected screen.

Options and

Parameters: Screen (left or right)

Defaults: None

Operation: Refer to [Figure 8-1. NEXRAD Unit Status Display](#), for the graphic screen display, and the sheet following the [Status Menu](#) in Appendix A for the alphanumeric screen version. This function will display on the selected graphic or alphanumeric screen the status of the associated NEXRAD Unit. (These two figures are just examples and may not depict real data.) This includes dedicated narrowband, associated RPG and RDA status as well as a summary of product availability status from the RPG over the dedicated communications line. If the RDA and RPG are operational, the additional information of current operational (weather) mode, current volume coverage pattern number and current elevation angle list are displayed as well. When product availability status changes from Available (or Load Shed) to Unavailable (or vice versa), this display will automatically be placed on the left graphic screen and the alphanumeric terminal will beep 10 times. If the left screen is in graphic edit mode (Edit: Maps, Annotations, Alert Areas, RCM, or Pick-A-Color) it will appear on the right screen instead. Use REDISPLAY LAST PRODUCT to restore a product on the screen. Additionally, all status changes listed on this screen appear on the system status line and are filed in the system status file.

Whenever the graphic NEXRAD Unit Status Display appears on either or both graphic screens, it will always be kept current. That is, if any information on it changes, it will automatically be redisplayed to reflect the change. This is only true while it is displayed. This is not the case with other displays, except status lines.

The following is a brief explanation of the fields of this display:

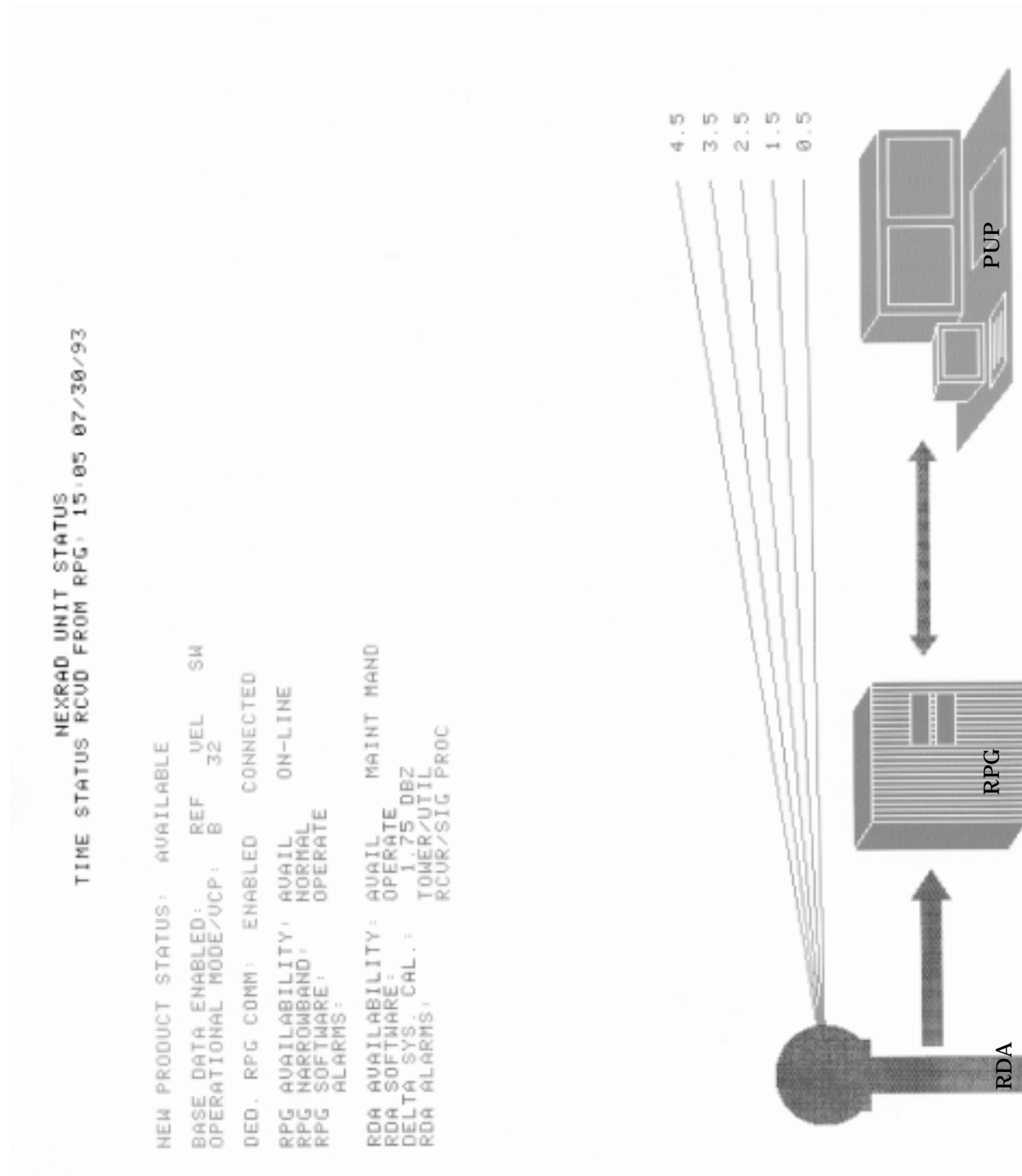


Figure 8-1. NEXRAD Unit Status Display

- New Product Status: (a) (b)

where (a) = "AVAILABLE", "LOAD SHEDDING" or "UNAVAILABLE"

Load Shedding means the RPG is currently loadshedding some product requests but generally, products are available. Unavailable means product availability status has changed to indicate the loss of product receipt. Available means products are being received. Note, that this is not an indication of dial-up line product availability status or the ability to request old products.

(b) = Blank if everything is normal, or "DEGRADED" if the RDA is reporting that due to data processing problems some of the base data may be suspect.

- Base Data Enabled: (a) (b) (c)

where (a) = "REF" if Reflectivity base data is available.

(b) = "VEL" if Velocity base data is available.

(c) = "SW" if Spectrum Width base data is available.

Those which are not available will be blank in those positions.

- Operational Mode/VCP: (a) (b)

where (a) = the Operational (Weather) Mode A, B, etc. currently in effect at the RDA/RPG/PUP. Mode M is reserved for RPG Maintenance Mode.

(b) = the current Volume Coverage Pattern number (4-decimal digit) in effect at the radar, or blank if not available.

- Dedicated RPG Communications: (a) (b)

where (a) = "ENABLED" or "DISABLED" based on the PUP operator selection for connection of the dedicated RPG to PUP communication line(s). Normally, this is a single line, but provision is made for a second line in which case this will be "Enabled" if either line is enabled (connected by the operator).

(b) = "CONNECTED", "DISCONNECTED", or "FAILED" based on the current hardware status of the line. If Disconnected or Failed, then no other information except the current operational (weather) mode in effect at the NEXRAD Unit is listed, and obviously, products are unavailable over the dedicated line. "FAILED" indicates that a hardware problem with the line is detected.

- RPG Availability: (a) (b) (c)

where (a) = Blank if no status has been reported from the RPG. "AVAIL" if the RPG hardware is available for producing products. "UNAVAIL" if the RPG hardware is unavailable for producing products.

(b) = Blank if not available.

"ON LINE" if everything is working OK at the RPG.

"MAINT RQRD" if products are available but there is a problem, the communications will disconnect following this. If it does not, the RPG is providing false

information.

- (c) = Blank if the RPG is not loadshedding products or, "LOAD SHEDDING", if it currently is. Loadshedding means that not all products currently being requested by PUPs are being distributed (and sometimes generated) due to the fact that the requests exceed capacities of the RPG system.

- RPG Narrowband: (a)

where (a) = Blank if not available.

"NORMAL" if a dedicated narrowband communication line is connected to the associated RPG and the RPG is reporting normal operation.

"CMND DSCNCT" if a narrowband line disconnect command has been selected by the RPG operator. Normally the line will actually disconnect following this. If it does not, the RPG is providing false information.

"NRBND LDSHD" if the narrowband communications is unable to support the amount of data which has been requested from the RPG, which results in a product load-shedding condition.

- RPG Software: (a)

where (a) = Blank if this status is not available. "TEST MODE" if the RPG is switching to a test investigation mode. In this mode, it will normally disconnect all PUPs, but connect the RPGOP (or collocated PUP). The weather operational mode may switch to "M" for "Maintenance" and use RPS list "I." If any products are received in this mode, they should not normally be used for weather analysis.

"SHUTDOWN" if the RPG software has been shutdown by the RPG operator or if the RPG has initiated a Restart and the narrowband line has not connected within 30 seconds.

"STANDBY" if the RPG is not generating products but has some software tasks running. It will normally disconnect its narrowband communication lines to PUPs and the RPGOP in this mode.

"OPERATE" if the RPG software is on-line and generating products normally.

"RESTART" if the RPG software is about to undergo a reset. Following this, it will normally disconnect the narrowband communication lines and then reconnect them when the restart is complete.

- RPG Alarms: (a) (b) (c)

where (a) = Blank if no alarms.

"CPU" if there is an RPG CPU overload condition.

"BASE DATA DISK FAILURE" if there is a hardware failure of the disk on which the RPG stores base data.

"PRODUCT DISK FAILURE" if there is a hardware failure of the disk on which the RPG stores products.

"INPUT BUFFER" if the RPG is loadshedding products in an attempt to keep up with its base data arriving from the RDA.

"ARCH III LOAD SHED" if the RPG is attempting to archive products onto its optical disk and that disk has reached its storage capacity and stopped archiving. This message may be useful to an RPGOP operator if that operator is the same as the RPG operator.

"PROD STORAGE" if there is a problem with storing products on the RPG disk. This may or may not immediately affect its ability to generate and send products depending upon the severity of the problem.

"WIDEBAND" if there is a wideband communications hardware failure between the RPG and RDA. No new products can be generated in this case.

"ARCH III FAIL" if there is a hardware problem with the RPG's optical disk archive device. This message may be useful to an RPGOP operator.

"MLOS FAS" if a microwave communications failure between the RDA and RPG has occurred.

"INTERCOMPUTER LINK" if the narrowband communications link between redundant RPGs has gone down.

"REDUNDANT CHANNEL" if a communications problem exists between two RPGs (e.g., communication protocol).

(b) = Blank if no RPG memory problem, or, "MEMORY" if there is an RPG computer memory problem.

(c) = Blank if no RPG control problem, or, "CONTROL" if there is an RPG CPU hardware problem. (Don't expect to see this message too often since it is the RPG which must send this status.)

- RDA Availability: (a) (b) (c)

where (a) = Blank if no status has been reported from the RDA via the RPG.

"AVAIL" if the RDA hardware is available for collection and transmission of base data.

"UNAVAIL" if the RDA hardware is not available for the collection and transmission of base data.

(b) = Blank if unknown.

"ON LINE" if everything is working OK at the RDA.

"MAINT RQRD" if the RDA is sending data to the RPG but there is a non-critical hardware failure.

"MAINT MAND" if the RDA is still able to send data to the RPG but there is a critical hardware failure requiring mandatory maintenance.

"CMND SHTDN" if the RDA software has been commanded to be shutdown by the RDA operator.

"INOPERABLE" if the RDA is down due to critical problems or the wideband communications is shutdown from the RDA to the RPG.

"WDBND DSCNCT" if the RDA is unavailable due to the fact that the wideband to the RPG is disconnected.

(c) = Blank if Auto Calibration normal.

"AUTO CAL DISABLED" if the RDA is using the UCP operator-entered value for gain correction versus the normally used computer calculated value.

- RDA Software: (a)

where (a) = Blank if unknown.

"OPERATE" if operating normally.

"STANDBY" if the RDA is in standby mode (refer to RDA User's Guide, Section 1.3.3). No data is available.

"RESTART" if the RDA is in a Restart mode (refer to RDA User's Guide, Section 1.3.3). No data is available.

"OFLN OPER" if the RDA is in Off-line Operate mode (refer to RDA User's Guide, Section 1.3.3). No data is available.

"PLAY BACK" if the RDA is not operating the radar but instead is reading in Archive II data and sending that data in real-time to the RPG.

"STARTUP" if the transmitter is in a warmup state.

- Delta Sys Cal: The difference in decibels (dB) between the gain scale factor (Sys Cal) that is used by the Programmable Signal Processor (PSP) and the default Sys Cal contained in RDA adaptation data. The PSP uses Sys Cal to scale reflectivity estimates. The Sys Cal used by the PSP is usually computed by the RDA's calibration function but can be overridden by the operator at the UCP or the RDA maintenance console.

- RDA Alarms:
(Note that the "RDA Availability" will indicate whether the product data is being affected)
"TOWER/UTIL" if a sensor in the radar tower indicates a problem.

"PEDESTAL", "XMTR", "RCVR/SIG PROC" if there is a detected problem with these pieces of hardware.

"CONTROL" if there is a problem with the RDA Data Acquisition Unit.

"WIDEBAND" if there is a problem with the RDA to RPG communications link.

"WIDEBAND USER" if the wideband link between the RDA and it's other user (not the RPG) has been disconnected.

"ARCHIVE II" if an error has occurred on the RDA's Archive II hardware during recording of radial data or during reading of Archive II data when in PLAYBACK mode.

This display is produced by the PUP and is not a product either requested of or produced by the RPG. It is created at the PUP at the time of display from status information sent from the RPG and saved by the PUP. The timeliness and accuracy of this information is dependent upon the RPG. This information is supposed to be updated and sent, whenever it changes, from the RPG.

The graphic display utilizes the entire screen in the same manner that a test pattern or a graphic help screen does, i.e., no other information such as status information will be displayed on that one particular screen while this display is on. Normally, status information will be displayed and updated on the other graphic screen, as well as the alphanumeric screen, while this display is on.

Notes: When selected, this display will contain the status at the time of selection. It will be updated only on the graphic screens if it is left on indefinitely. All the same information, except the actual elevation angles, contained on this display is updated on the system status line whenever a change occurs. These historic status messages are available on the system status display on the alphanumeric ([8-1.7 System Status](#)).

There is a similar NEXRAD Unit display available on the alphanumeric screen by selecting (S)TATUS,(N)EXRAD UNIT.

The alphanumeric and graphic NEXRAD Unit displays are both available for hard copy.

8-1.2 Types of Products Available in PUP Data Base.

Selection:

Alphanumeric (only): (S)TATUS,(T)YPES OF PRODUCTS AVAILABLE IN PUP DATABASE

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Operation: This function will list all of the different product types that are available in the PUP data base. The product ID number, product name, data levels, resolution, and layer will be listed for each product. Products will be listed by product ID number in ascending order. If there are no products in the PUP data base, the feedback line will indicate "NO PRODUCTS IN DATABASE". For an example of the types of products available in the PUP data base display, see [APPENDIX A](#).

8-1.3 Products in PUP Data Base (by ID Number).

Selection:

Alphanumeric: (S)TATUS,(P)RODUCTS IN PUP DATABASE,
<prod-id#>
(S)TATUS,(P)RODUCTS IN PUP DATABASE,
(D)ISPLAY,<LINE#>,<scr-quad>
(S)TATUS,(P)RODUCTS IN PUP DATABASE,
(DEL)ETE,<LINE#>

Active

Environment: Always active. The display and delete options are only active if the list of products in PUP data base is displayed on the screen (see Section 4 for these options).

Options and

Parameters: List products in PUP data base, display a product from a list, or delete a product from a list.

Product ID number (see [Chapter 5](#) ,)

<LINE #> refers to the numbered line on the product list displayed.

<scr-quad> may be L, R, L1 through L4 or R1 through R4 or ; for the alphanumeric screen.

Defaults: The default product ID number (see) for products in the PUP data base (ID numbers are listed on the product title line) is the last selected ID number,for this command, plus one. If the last selected ID number is 90, the default will reset back to 16. The default screen-quadrant for the display option is full screen left.

Operation: The products in the PUP data base by ID number option will display a list of all products in the PUP data base for the product ID number specified. The slice, center azimuth, center range, RPG, time, and date will be displayed for each product in the data base, where those parameters apply.

Once the user has displayed a list of products, the display and delete options may be used. The leftmost column on the displayed product list contains the line numbers which start at 1 for the latest stored product. This line number is used when entering a product for display or deletion from the data base. For the display option the user must also specify a screen-quadrant. The valid screen-quadrant values are "L" or "R" for left or right graphic screens, L1 through L4 or R1 through R4 indicating left or right screen and the quarter screen quadrant number. For alphanumeric products enter semicolon (for default) for the screen.

When the delete option is used, the display will not be updated until it is redisplayed showing that the product was deleted. The reason for this is that several products can be deleted one by one using the line numbers that were originally displayed before any products are deleted. See Appendix A for an example of this display.

Notes: It is possible to delete a product on a different page of the display by using a line number not displayed on the screen. This type of deletion is dangerous because the user could be deleting products that should not be deleted.

The product list must be displayed on the alphanumeric screen for the display or delete options to work. If the operator returns to a menu to look up a command, the list must first be redisplayed before the display or delete options again become available.

The display option will not change product default parameters since they are not specifically selected in this case.

The purpose of the delete option is to individually remove products from the data base. Products will automatically be removed after a period of time when they are written over by newly received products.

[Chapter 4](#) contains more information on these options.

8-1.4 Earliest Time in PUP Data Base.

Selection:

Alphanumeric (only): (S)TATUS,(E)ARLIEST TIME IN THE DATA BASE

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Operation: This function will display the earliest time of the products stored in the data base along with the product name and parameters associated with that time. This function is useful because it shows the user how far back in time the data base exists. See [APPENDIX A](#) for an example of this display.

Notes: If a product has been read into the data base from an archive optical disk or during training mode, the earliest time in the data base will most likely reflect an archived product read in.

8-1.5 RPG Products Available.

Selection:

Alphanumeric (only): (S)TATUS,(R)PG PRODUCTS AVAILABLE,
(D)ISPLAY LAST

(S)TATUS,(R)PG PRODUCTS AVAILABLE,
(R)EQUEST NEW

Active

Environment: The "Display Last" option is only active if a list has been previously requested and stored in the PUP data base. The "Request New" option is only active if a dedicated line to the RPG is connected.

Options and

Parameters: Display Last or Request New

Defaults: The default option is display last.

Operation: This function is used to display or request the list of product types available from an RPG. The Display Last option will display the product ID numbers, product mnemonics, and associated parameters of all product types in the last list received from any RPG. A list must be present in the PUP data base from a previous request for this option to be successful. The Request New option will request from the associated RPG a new list of product types available. The list is automatically requested upon dial-up of a non-associated RPG. Once the list is stored in the PUP data base, it may be displayed with the Display Last option. The time and date that the list was generated will be displayed on the top of the display screen. This time and date are useful since they indicate to the user the validity of the displayed list. Products appearing on this list may still be unavailable because of RPG loadshedding or other causes. See Appendix A for an example of this display.

8-1.6 Monitor Performance Display.

Selection:

Alphanumeric (only): (M)ONITOR PERFORMANCE,(D)ISPLAY

Active

Environment: The monitor performance display is only active if monitor performance has been previously turned on ((M)ONITOR PERFORMANCE, BEGIN command) and at least one monitor performance period has passed. Once monitor performance is turned off ((M)ONITOR PERFORMANCE, END command), the last period's data will be active for display (assuming it was updated at least once).

Options and Parameters: None

Defaults: None

Operation: The Monitor Performance function is used to meet specification requirements to monitor particular functions and operations within the PUP system. Once the Monitor Performance function is turned on, via the (M)ONITOR

PERFORMANCE,(B)EGIN MONITORING command, the data will be updated at the end of each monitor performance period. (See [Section 7-9: Monitor Performance Begin and End Monitoring](#) for turning monitor performance on and off.) The length of the monitor performance period is set (in adaptation data) via the (M)ONITOR PERFORMANCE,(P)ERIOD,<MINUTES> command. (See paragraph [13-1.5 Monitor Performance Update Period](#). for information on setting the monitor performance period.)

The monitor performance display consists of two pages of data. The first page contains the following data: monitor performance period, sampling time, CPU utilization, percentage of disk sectors used, communication line usage information, channel information, number of products received, number of products transmitted, and PUES and RPG loadshed information. The second page contains the monitor performance period, the sampling time, the number of products displayed, and average response times for the timed functions. See Appendix A for an example of the monitor performance display.

While only the last monitor performance period's data is available for display, all previous periods, from the last time monitor performance was turned on, are available for archive so that they can be processed by the OSF. Using CPCI 28, the OSF will take

the data and generate several types of analysis reports.

Notes: The Monitor Performance function should only be turned on (begun) when it is needed, since it slows down the operations of the PUP system and periodically writes information onto the system console. There is a maximum of 99 monitor performance periods that can be stored on the disk. The Monitor Performance function will end automatically if it is left to run for more than 99 periods.

8-1.7 System Status.

Selection:

Alphanumeric (only): S)TATUS,(S)YSTEM

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Operation: This function will display the contents of the system status file. The system status file contains information about system changes and events that have been displayed on the system status lines. The system status file will be displayed in descending order by time and date beginning with the latest status reported. The system status file will contain at least six hours of reported status data. The display will consist of 35 pages of reported status data. See [APPENDIX A](#) for an example of the system status display (following the Status menu). Any individual page may be accessed by using the page forward or page back function keys (7 and 6 respectively) or the direct page access command: (P)AGE,<N> where N is the page number. If there is a partial command remaining on the command line depress function key 3 to clear it prior to entry of the page command.

Notes: Not all information reported on the system status lines gets filed in the system status file, only information which may be of historical interest. See paragraph [8-2.9.1 System Status Lines Contents Explanation](#). for an explanation of all system status messages.

Upon system startup or restart, the current PUP software version number will be displayed at the alphanumeric terminal and graphic screens, plus filed as a status message.

8-1.8 Status of Archive.

Selection:

Alphanumeric (only): (S)TATUS,(A)RCHIVE

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Operation: This function will display on the alphanumeric terminal "Archive Status" display screen the instantaneous status of the archive functions. The status of up to two functions for up to two archive units is displayed. The status consists of: "ARCHIVE NOT ACTIVE," "ARCHIVE READ ACTIVE," "ARCHIVE WRITE ACTIVE," "AUTO ARCHIVE INCLUDING ONE TIME REQUESTS & MAPS ACTIVE," "AUTO ARCHIVE NOT INCLUDING ONE TIME REQUESTS ACTIVE," "AUTO ARCHIVE INCL ONE TIME REQUESTS WITHOUT MAPS ACTIVE," AND "AUTO ARCHIVE OF STATUS MESSAGES ACTIVE." The "ARCHIVE READ ACTIVE" status will be true throughout training mode. The status of the tape unit for the "Archive of the Monitor Performance File function is also provided. The status will consist of "ARCHIVE OF MONITOR PERFORMANCE DATA NOT ACTIVE" or "ARCHIVE OF MONITOR PERFORMANCE DATA ACTIVE."

Optical disk utilization for each of the two archive units is also displayed on the "Archive Status" display. Disk utilization is provided as a percentage. When no disk is actively mounted on in an archive unit, the disk utilization is displayed as "N/A."

8-1.9 Communications Line Status.

Selection:

Alphanumeric (only): (S)TATUS,(C)OMMUNICATIONS

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Operation: Refer to the "Communications Line Status" display in [APPENDIX A](#), which is the second page after the Status Menu, for an example of this status display. This status display lists the ten possible PUP communications lines. There are up to two dedicated lines to the associated RPG, up to eight dial-out lines to any RPG (associated or non-associated), up to two dedicated lines to PUES and up to four dial-in lines from Other Users.

Following the line numbers on the display are the designators used by the operating system to assign these lines (these start with the letter "Z") which is information useful to a software technician.

There are four fields of information on the display to describe the current status of each communication line as follows:

a. Last Status Message Reported. This field will indicate the last reported system status message, including day of the month and time it occurred, pertaining to this particular communication line. Paragraph [8-2.9.1 System Status Lines Contents Explanation.](#) of this document describes the meaning of all possible messages which may appear here although they are fairly self explanatory. A blank in this field indicates that no status has been reported for this line since the software was last started. This means that no attempt has been made to connect this line, if it exists.

b. Operator Selection Status. This field indicates whether the PUP operator has

enabled (ENA) or disabled (DSA) this communication line at the Control Menu with a Connect or Disconnect request. These requests tell the PUP to attempt to make a hardware connection or disconnection, but do not guarantee that the "hardware" status can be achieved.

c. Hardware Status. This field indicates the current actual hardware connection status of the communication line resulting from the operator selected Connect or Disconnect request. CON indicates that the line is connected at both ends and is communicating. DSC indicates that the line is disconnected. CP (Connect Pending) indicates that the line is connected at the PUP end but not at the other end and that no communication is taking place. DP (Disconnect Pending) indicates that the operator has requested a line disconnection but that the hardware disconnection has not yet taken place. FLD (Failed) indicates that a line has disconnected due to a hardware problem. It should be pointed out that when a hardware disconnection occurs, the PUP software will attempt line reconnection every 30 seconds unless the operator disables the line via the (C)ONTROL,(C)OMLINE,(D)ISCONNECT, xx command where xx is the failed line number.

d. RPG. This field is only applicable to a dial-out to RPG line. It identifies the mnemonics of the RPG that this line was last connected to (or is currently connected or attempting connection to).

Notes: This screen will contain the communication status at the time of display and will not be updated if left on the screen indefinitely. To update it when it is on the display, simply request it with function key 4 (Restore Command) followed by the depression of the Return key.

8-1.10 Status of Background Maps.

Selection:

Alphanumeric (only): (S)TATUS,(B)ACKGROUND MAP FILES

Active

Environment: Always active

Options and

Parameters: None

Defaults: None

Operation: This function will display the contents of the auxiliary map files and the associated map file. See Appendix A for an example of this display. The RPG ID mnemonic of maps will be displayed when the map is present. Otherwise, "*****" will be displayed. Refer to paragraph [10-2.17 Read Background Map File](#) for a description of the Read Background Map File archive function which stores maps in those files.

Section 8-2: Status Lines

Sections 8.2.1 through 8.2.11 describe various status lines displayed on the graphic and/or alphanumeric screens. Refer to [APPENDIX A](#) for alphanumeric, and [APPENDIX D](#) for graphic screen pictorials of the locations of these status lines.

8-2.1 Magnification/Filter/Combine Level.

Location: Single status line immediately below product color bar area of graphic display (see Appendix D)

Color: White

Format: MAG=mX FL=ff COM=c

where: m is the currently displayed magnification 1, 2, 4 or 8; ff is the position of the color bar selected for filtering (1-16). 1 indicates no filtering. c is the number of levels combined on the display (with the COMBINE UP function) 1, 2, 3, 4, or 5. 1 indicates no combining.

Function: Describes current state of the Magnification, Filter and Combine functions as applicable to the single graphic screen it is displayed on.

Notes: This status line only appears when a graphic product is displayed on that screen. If a non-geographic product is displayed (which cannot be magnified) then MAG=mX is not included on this status line.

8-2.2 Overlays Displayed.

Location: Double status line immediately below the magnification/filter/ combine level line of the graphic displays (see Appendix D)

Color: Cyan blue

Format: OVL:XX XX...XX

where: XX is a currently displayed overlay:

A1 = ALERT AREA 1, A2 = ALERT AREA 2, AN = ANNOTATIONS,
AT = ATTRIBUTES, CR = CURRENT CROSS SECTION,
HI = HAIL INDEX, M = MESO, SC = COMBINED SHEAR CONTOUR,
ST = STORM TRACK, SW = SWP, TV = TVS

Function: Describes the associated overlays that are currently displayed with the product on this screen.

Notes: This status line only appears when an overlay is displayed with a product on that particular screen. Associated overlays for a product (see [Chapter 13 Adaptation Data](#)) are automatically displayed with a product and will appear on this status line if they are available. If they are not available, they will appear on the overlays unavailable line (see paragraph [8-2.3 Overlays Unavailable](#)).

This indicator will be set if the overlay is obtainable even though it is possible that no data may actually appear on the display for the overlay.

8-2.3 Overlays Unavailable.

Location: Double status line immediately below the overlays displayed line of the graphic display (see [APPENDIX D](#))

Color: Green

Format: OVL U/A:XX XX...XX

where XX is an overlay that an attempt has been made to display and the overlay is unavailable:

Function: AN = ANNOTATIONS, AT = ATTRIBUTES, HI = HAIL INDEX, M = MESO, SC = COMBINED SHEAR CONTOUR, ST = STORM TRACK, SW = SWP, TV = TVS
Describes the associated overlays for which an attempt has been made to display on this screen but which are unavailable.

Notes: This status line only appears when an attempt to display an overlay is unsuccessful because the overlay is unavailable. Associated overlays for a product (see [Chapter 13 Adaptation Data](#)) are automatically displayed with a product and will appear on the overlays displayed line if available (see paragraph 8-2.2 [Overlays Displayed.](#)). If they are not available, they will appear on this line.

8-2.4 Polar Grid Ring Interval and Angle.

Location: Single status line immediately below the overlays unavailable lines of the graphic display (see [APPENDIX D](#))

Color: White

Format: POLAR=xxNM yyDEG

where: xx is the interval between range rings for the Polar Grid.
yy is the angle between each of the azimuth markers on the polar grid.

Function: When polar grid map is displayed, this describes the number of nautical miles between the rings as well as the angle, in degrees, between each azimuth marker as applicable to the single graphic screen it is displayed on.

Notes: This status line appears when the polar grid map is displayed. This line will automatically appear if this map is associated with the product in adaptation data (see [Chapter 13 Adaptation Data](#)).

8-2.5 Background Maps Unavailable.

Location: Double status line immediately below the range ring interval/polar grid angle line of the graphic displays (see [APPENDIX D](#))

Color: Green

Format: MAPS U/A: xx xx...xx

where xx is an unavailable map:

AH = AIRWAY HIGH, AL = AIRWAY LOW, AP = AIRPORT, CI = CITY,
CN = COUNTY NAMES, CO = COUNTY, HY = HIGHWAY, LF = LFM GRID,

MO = MILITARY OPERATIONS AREA, NA = NAVAID,
 PA = PROHIBITED AREA, RA = RESTRICTED AREA, RB = RIVER BASIN,
 RS = RADAR SITES, RV = RIVER, ST = STATE, WA = WARNING AREA.

- Function:** Describes maps for which an attempt has been made to display on this screen, but which are unavailable. This applies to the single map selection that is being requested.
- Notes:** This status line only appears when an attempt to display a background map is unsuccessful because the map is unavailable. Maps that are associated with a product (see paragraph [13-1.3 Product to Background Map Associations.](#)), and are unavailable, will appear automatically on this line when the product is displayed.
- Multiple maps will be listed on this line only when a set of maps is to be redisplayed; otherwise only the last selection will be listed.
- This function is normally useful when a product from a Non-Associated RPG is being displayed for which maps must be obtained separately. Even when obtained, not all maps may be available in the set the RPG sends.

8-2.6 Time Lapse/Auto Display Rate.

- Location:** Single status line immediately below the background maps unavailable line of the graphic displays
- Color:** Yellow
- Format:** TL n RATE = XX.X SEC
 -or-
 AUTO RATE = YYY SEC
- where: n is the time lapse number (1, 2, or 3)
 XX.X is the number of seconds between time lapse frames
 (0.3 - 10.0)
 YYY is the number of seconds between auto display products (10-360) for this screen.
- Function:** Describes the time lapse or auto display rate as applicable to the single graphic screen it is displayed on.
- Notes:** This status line only appears when a time lapse or auto display is active. The maximum number of seconds between auto display products is dependent on the number of products on the auto display list so that the entire list can be displayed within six minutes.

8-2.7 Cursor Height and Coordinates.

- Location:** Double status line immediately below the time lapse/auto display rate line of the graphic displays
- Color:** Cyan Blue (Auto Cursor Mode), White (Manual Cursor Mode)
- Format:** When displayed with products with elevation angle as a parameter:
- A/R (RDA) YYY DEG For Azimuth/Range from RDA
 XXXXXFT ZZZ NM

CUR. L/L DD/MM/SSN
XXXXXXFT DDD/MM/SSE

For Lat./Long

A/R (HOME) YYY DEG
XXXXXXFT ZZZZ NM

For Azimuth/Range from Home

Format: When displayed with RCM Intermediate Graphic Product:

A/R (RDA) YYY DEG
LFM:AAA ZZZ NM

For Azimuth/Range from RDA

CUR. L/L DD/MM/SSN
LFM:AAA DDD/MM/SSE

For Lat./Long

A/R (HOME) YYY DEG
LFM:AAA ZZZZ NM

For Azimuth/Range from Home

Format: When displayed with other products or with background maps only:

A/R(RDA) YYY DEG
ZZZ NM

For Azimuth/Range from RDA

CUR. L/L DD/MM/SSN
DDD/MM/SSE

For Lat./Long

A/R (HOME) YYY DEG
ZZZZ NM

For Azimuth/Range from Home

where: xxxxxx is the height of the cursor in feet above mean sea level.
yyy is the angle in degrees from azimuth angle 0 from the radar at which the cursor is located. zzz is the distance in nautical miles from the radar at which the cursor is located.
DD/MM/SS is the latitude in degrees, minutes and seconds north (or south) at which the cursor is located.

DDD/MM/SS is the longitude in degrees, minutes and seconds east (or west) at which the cursor is located.

N is N for north or S for south.

E is E for east or W for west.

AAA is the three letter LFM grid box identifier (for Radar Coded Message).

Function: Describes the cursor height in feet above mean sea level and the cursor location in either Azran or lat/long applicable to the single graphic screen they are displayed on. For Radar Coded Message editing (only) the LFM grid box location is also provided. This is true as long as an RCM Intermediate graphic product is on the master cursor screen.

Notes: This status line will only appear on the graphic screen that is displaying the master cursor. (see paragraph [1-1.1 Cursor Link/Unlink Function.](#)).

Once the azran or lat/long display is selected (see paragraph [1-1.2 Cursor Coordinate Display Function.](#)), positioning the cursor for the position at which the user wishes to display the coordinates and depressing any of the buttons on the puck will display the cursor coordinates (and height where applicable) when in manual cursor mode. In

auto cursor mode, the display will update automatically, once per second. See paragraph 1-1.3 [Cursor Home Function](#). for more information about the cursor mode.

Cursor height is only displayed with products which have elevation angle as an associated parameter.

Cursor coordinates are only displayed when there is a geographic display on the master cursor screen.

8-2.8 Graphic Product Queue Indicator.

Location: Single status line immediately below the cursor height and coordinates line of the graphic displays (see [APPENDIX D](#))

Color: Green

Format: (If product from associated RPG:)

Qxx nnn hhmmt

(If product not from associated RPG:)

Qxx nnn hhmm rrrr

where: xx is the number of products on the queue (1-15).

nnn is the product name mnemonic of the earliest product on the queue.

rrrr is the RPG mnemonic from which nnn originated.

hhmm is the time of day at which nnn was generated.

t is the type of product:

R = routine product set product

O = one time requested product

U = unsolicited product (or untracked)

A = alert product

T = training mode product

Function: Describes the number of products on the graphic queue and the next graphic product to be displayed with the DISPLAY QUEUED PRODUCT function on the graphic tablet. This product is the oldest product on the queue. The queue will hold a maximum of 15 products. When the queue is full and more products are received from an RPG or optical disk in training mode, the oldest product on the queue will be removed from the queue and the new product added.

Notes: If no products have been placed on the queue, or all products on the queue have either been displayed, acknowledged, or cleared, this line will display:

QUEUE EMPTY

This line will normally be displayed and updated on both graphic screens simultaneously.

In Graphic Auto Display mode, the queue will always be cleared. When this mode is terminated, newly received products will be added.

When the queue is full (15 products), the product listed will always be the graphic product that was listed on the RPG Product Status line, 15 received products previ-

ously. If there are less than 15 products on the queue, this indicator will not change unless a product is displayed off the queue or the queue is cleared.

If a graphic screen is cleared and a one-time request arrives, it will be displayed automatically rather than be placed on the queue.

8-2.9 System Status Lines.

Location:

Graphic display: Double status line immediately below the RPG Product Request lines and directly above the graphic tablet selection feedback line (see [APPENDIX D](#)).

Alphanumeric display: Single status line in the lower left-hand corner of the alphanumeric display. The total number of characters is the same as on the two graphic status lines (see [APPENDIX A](#)).

Color:

Graphic display: White

Format:

Graphic display: dd/hhmm TTTTTTTTTT
TTTTTTTTTTTTTTTTTT

Alphanumeric display: dd/hhmm TTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
where: dd is the day on which the message was generated.
hhmm is the time at which the message was generated.
T's are variable English text messages as explained in Section 8.2.9.1.

Function: Describes the status of system changes and events and the time and day at which they occurred. Most messages that appear on this line will be filed in the system status file (see [8-1.7 System Status](#)).

Notes: This line will be displayed and updated on all three screens simultaneously. Types of messages include the following:

- RDA status changes
- Volume Coverage Pattern changes
- Weather Operational Mode changes
- RPG Com. Line connection status changes
- PUP hardware errors
- PUP software status indicators

Other data errors and are fully listed (except the date/time portion) in Section 8.2.9.1.

8-2.9.1 System Status Lines Contents Explanation.

This section explains the contents of the English language text message portion of the system status lines both as they appear on all three screens and as they appear when the system status file contents are displayed on the alphanumeric terminal.

Items which refer the operator to a hardware technician signify that there is a problem with the hardware, the diagnosis of which is outside the scope of this document and which normally would be

beyond the capabilities of the normal operator to correct, without hardware training.

Items which refer the operator to a software technician signify that there is a problem with the software. The problem could be in the way the system was put together, with the contents of a data file, with the operational software in the PUP, i.e., a software bug, with the operational software in the RPG, i.e., a software bug, or with the operating system generation for the particular PUP in operation. Because the possibilities number in the many thousands it is not practical for this document to contain a treatise on debugging software. Your agency should have a procedure for you to follow in reporting these errors. Until they are corrected: 1) Continue to use the system normally. If the error causes anomalies which make the system difficult to use then, 2) do a PUPDOWN and a PUPUP at the system console. If you still cannot use the system, your agency should provide someone that you can call for help.

All of the following messages have "dd/hhmm" appended to the front as explained in Section 8.2.9. These messages are described below in alphabetical order.

ADAPTATN STAT XXXX Y

This message appears because an internal check within the PUP software has detected an illegal adaptation data value. These messages are included in case PUP adaptation data is generated, with illegal values or edited to illegal values. If they appear with default adaptation data they should be reported, including the xxxx and y error codes, to a software technician. You might first try reloading adaptation data from tape. The first two x digits are the CPC (program) number reporting the problem within the PUP software. If they first appear after editing the adaptation data, this means that one or more illegal values have been entered, and a thorough check of the data entered should be made.

xx ALERT AA#y zzzzzz uuuuuu

Displayed when a weather alert is reported to the PUP by the RPG. xx = a two-letter mnemonic which represents the weather alert being reported. y = the alert area number for which the weather alert is being reported (1 or 2). zzzzzz = the value that exceeds the threshold value of the weather alert being reported. uuuuuu = the units associated with the value. Reference the Alert Status display (paragraph [8-3.2 Alert Status Display](#).) for more information on the alert. The ACKNOWLEDGE ALERT function (paragraph [8-3.1 Alert Status Lines \(Weather Alerts\)](#).) should be selected by the operator following receipt of this message to stop the audible alarm from sounding.

xx ALERT AA#y CANCELLED

Displayed when a weather alert has been canceled by the RPG. xx = a two-letter mnemonic which represents the weather alert being canceled. y = the alert area number for which the weather alert has been canceled (1 or 2). It will simultaneously be deleted from the Alert Status display (paragraph [8-3.2 Alert Status Display](#).)

xx ALERT AA#y OPR CANCELLED

Displayed when a weather alert has been canceled by the operator via the command (S)TATUS, (CA)NCEL ALERT, <line #>. xx = a two-letter mnemonic which represents the weather alert being canceled. y = the alert area number

	for which the weather alert has been canceled. It will simultaneously be deleted from the Alert Status display (paragraph 8-3.2 Alert Status Display).
ALERTS AA#y CANCELLED	Displayed when all the weather alerts for a specific alert area have been canceled by the RPG. y = the alert area number for which all weather alerts have been canceled.
ALERTS AA#y OPR CANCELLED	Displayed when all the weather alerts for a specific alert area have been canceled by the operator via the command (S)TATUS, (CA)NCEL ALERT, (A)LL. y = the alert area number for which all weather alerts have been canceled. If alerts were in both areas, two of these messages will appear, one for each.
ALPHA CRT INIT ERROR xxxx	Displayed whenever an unsuccessful attempt to initialize the alphanumeric terminal by the software is encountered. It may be due to the fact that the terminal is already reconfiguring, or other I/O errors. xxxx = the code for input/output error status explained in Concurrent Computer Corporation OS/32 Supervisor Call Reference Manual, SVC1 Call, Section 2.2.
ALPHA CRT I/O ERROR xxxx yyy	Displayed after an unsuccessful input/output attempt to the alphanumeric terminal or as a result of a power loss to the alphanumeric terminal. It is most likely a hardware problem. When reporting the error, include the error code numbers. xxxx = the code for input/output error status. yyy = the code for type of I/O procedure when error occurred. These should be relayed to a software technician.
ALPHA CRT CONFIGURING	Displayed whenever a request is made to restart the PUP while the alphanumeric terminal is still being reconfigured from the last restart. After no more than 30 seconds, the alphanumeric terminal should again be available for use.
ARCH DEV CHANGED TO UNIT X	Displayed whenever a request is made through the alphanumeric terminal to change the Archive device interface. X = the unit number.
ARCHIVE TAPE WRITE DONE	Indicates monitor performance data was successfully written to tape.
ARCHIVE UNIT x ASSIGN ERR	Indicates that an attempt was made to access a file that was not assigned to a logical unit. x = archive unit number.
ARCHIVE UNIT x END OF DISK	Indicates training mode is active and all of the products on the optical disk have been read. To continue reading products, the operator should place a new optical disk in the drive area and select the training mode resume function. x = archive unit number.

ARCHIVE UNIT x ERROR xxxx	Indicates an optical disk error other than those defined is detected. These errors should not occur in the operational PUP. If they do, they should be reported, including the xxxx error code, to a software technician. x = archive unit number xxxx = optical disk error code.
ARCHIVE UNIT x FULL	Indicates that no more data can be written to the optical disk. The resume function should be used to continue after another optical disk is loaded. x = archive unit number.
ARCHIVE UNIT x ILLEGAL LU	Indicates that an illegal logic unit has been assigned or not assigned properly to the optical disk. x = archive unit number.
ARCHIVE UNIT x READ DONE	Indicates that an archive read has successfully completed. x = archive unit number.
ARCHIVE UNIT x RECVRY DONE	Indicates that an archive recovery has successfully completed. x = archive unit number.
ARCHIVE UNIT x UNAVAILABLE	Indicates that the archive unit x is off-line, an optical disk is not in the drive, the optical disk is write protected or this archive device is not set up in the Hardware Implementation Adaptation Data Category #9. x = archive unit number.
ARCHIVE UNIT x UNMOUNTABLE	Indicates that an error has occurred in mounting the optical disk. x = archive unit number.
ARCHIVE UNIT x UNRECOV ERR	Indicates that an archive unit hardware input/output unrecoverable error has occurred. Hardware maintenance should be contacted if this condition does not correct itself. x = archive unit number.
ARCHIVE UNIT x WRITE DONE	Indicates that an archive write has successfully completed. x = archive unit number.
ARCH UNIT x EXCDS UTIL THRES	Indicates the optical disk in the current archive unit exceeds the percent utilization threshold limit in the adaptation data (category 24, Overload Warning, Thresholds, halfword 5). The message will only be re-displayed when the utilization of the particular unit later goes below the threshold and then exceeds the threshold again. X = archive unit number.
ARCH UNIT x STATUS ARCH CNCLD	Indicates the status automatic archive function is canceled.
AUDIBLE ALARM MALFUNCTION	Displayed when there is a hardware status that the audible alarm is missing or malfunctioning.

AUTO ARCHIVE PAUSED	Indicates the archive function is paused and no other request will be processed until the function is resumed or canceled.
AUTO ARCHIVE RESUMED	Indicates automatic archive function is resumed on the current drive.
AUTO ARCHIVE STARTED	Indicates request to automatically archive products/maps has been processed and automatic archive is active.
BAD PRODUCT DATA x nn nnnnn	During the time lapse definition process, bad product data was detected. This is usually the result of a bug in RPG software (or bad tape read). When this occurs, the time lapse definition process from the PUP data base ends for both the low and normal resolution time lapses, regardless of the number of frames needed to complete the definition. The time lapse sequence is available for display for the number of frames successfully built before the bad product data was found. If this message occurs as a result of a continuous update time lapse frame, the frame will be lost for both resolutions but the continuous updating will continue. This error will not affect the other time lapse sequences. The x and n numbers to the right of the message are error codes useful only to the software technician. They are internal error codes in PUP software and should be reported to a software technician.
BAD PROD DATA xxx yyyy	<p>Displayed when a product or overlay selected for display is found by the PUP software to contain errors in the data. This normally indicates a problem in the RPG software which generated the data. Although the product and product header may be partially displayed, data may also be missing. When reporting this error to a higher authority, include the code numbers in the message. xxx = code for type of error found in the data. yyyy = additional code, the meaning of which varies depending on xxx. Errors having xxx codes between 600 and 699 should be reported to a software technician.</p> <p>Also displayed when an error has occurred during the conversion of product data to a standard communications format, prior to the transmission of data to the currently connected PUES. This error normally indicates either a problem in the RPG software which generated the product data, or a bug in PUP software CPC 04 which converts product data into PUES format. xxx is a code in the range 400 to 499 describing the problem and yyyy is an additional code identifying the error, the meaning of which varies depending on xxx. These should be reported to a software technician.</p>
BASE DATA = xxxxxxxxxxxx	Displayed when the base data at the local NEXRAD unit RDA (from which derived products are being generated by the RPG) changes. xxxxxxxxxxxx = the base data types pro-

	duced, e.g., REF VEL SW. This is shown on the NEXRAD Unit Status display.
COMMANDED DSCNCT FROM zzzz	Displayed when an RPG operator commands communication line disconnection, where zzzz indicates the RPG requesting disconnection.
COMM ERROR ON LINE n xxx yyy	<p>Displayed when an error with the software interface between the PUP program and the PUES or Other Users communications lines is detected. This normally indicates some sort of software problem has been encountered. The following numbers are of no use to the operator but should be included if the operator is reporting this error to a higher authority.</p> <p>n: Line number, as defined on the (S)tatus (C)ommunications screen.</p> <p>xxx:</p> <p>410 - An illegal communications command was received from the Narrowband Interface Task, S309M1.</p> <p>411 - A response was received on the Other Users line that is not normally handled. The response received is the debug data.</p> <p>412 - A response was received on the PUES line that is not normally handled. The status returned from the Narrowband Interface Task is the debug data.</p> <p>413 - A response from the Narrowband Interface Task was received with an illegal communications line number. The debug data is the line number actually received.</p> <p>yyy = An error code number reported by the software interface. Include this number when reporting this error.</p>
COMM LINE USAGE EXCEEDS xx%	When Monitor Performance is active, this is displayed when the percent utilization of the communication lines exceeds the value set in adaptation data (Category 24, Overload Warning Thresholds). xx = the percent utilization that has been exceeded. This is calculated as the average usage of all connected lines and included to meet requirements only.
CONNECTED TRAINING MODE ON	Displayed when the operator requests connected training mode and training mode is not already active. In connected training mode, only alerts and products associated with alerts are received over the dedicated RPG line. The dial-up, PUES, and Other User communication lines are all disconnected meaning that no products can be received from non-associated RPGs, and no products can be sent to PUES or Other Users.
CONNECTION TIMEOUT LINE xx	Displayed when a connection could not be established on dial-out to RPG Communications Line xx. Line xx is the line number shown on the (S)tatus (C)ommunications screen. This message should be reported to the hardware

technician and the software technician.

CPU USAGE EXCEEDS xx%

When Monitor Performance is active, this is displayed when the percent utilization of the central processing unit exceeds the value set in adaptation data (Category 24, Overload Warning Thresholds). xx = the percent utilization that has been exceeded. This is included to meet requirements only.

DELTA SYS CAL = XXXXXX.XX DBZ

Displayed when the delta system calibration, expressed in decibels, from the local NEXRAD unit RDA changes. This message is described in [8-1.1 NEXRAD Unit Status](#).

DISK ACCESS ERROR xxxxxxxx

Indicates a hardware problem with the disk. The error code provided is the device status from the operating system useful to the hardware technician as described in the OS/32 Supervisor Call (SVC) Manual from Concurrent Computer Corp. for an SVC 1 call.

DISK USAGE EXCEEDS xx%

When Monitor Performance is active, this is displayed when the percent utilization of the disk exceeds the value set in adaptation data (Category 24, Overload Warning Thresholds). xx = the percent utilization that has been exceeded. This is included only to meet requirements. Since the PUP always uses a fixed percentage, this can only appear if the adaptation data value is set too low.

DSCNCTD TRAINING MODE ON

Displayed when the operator requests disconnected training mode and training mode is not already active. In disconnected training mode all communication lines are disconnected. This means no products or alerts can be received from the associated or non-associated RPGs. Also, no products can be sent to PUES or Other Users.

EDIT CNCLD X MIN TO SEND RCM

Displayed when the time to edit an RCM has expired and the operator has not yet sent the RCM to the RPG. x = the number of minutes that the operator has to send the RCM to the RPG. This message will beep and flash.

EDITED RCM SENT TO RPG

Displayed when the operator has sent the radar coded message to the RPG.

ELEVATION CUTS = xx

Displayed when the number of elevation angles is reported to the PUP by the local NEXRAD unit RPG. xx = the current number of elevation cuts. END OF TAPE, ARCHIVE DONE indicates that the physical end of the monitor performance tape has been reached and no more data can be written to the tape.

END OTHER USER XX PROD LDSHD

Displayed at the end of Other User product request loadshed mode. This indicates that the PUP is no longer discarding requests for product data to be transmitted to the Other User. XX is the narrowband line number.

END OTHER USER XX RESP LDSHD	Displayed at the end of Other User response message loadshed mode. This indicates that the PUP is no longer discarding response messages to be sent to Other Users. xx is the narrowband line number.
END PUES XX PROD LOADSHED	Displayed at the end of PUES product request loadshed mode. This indicates that the PUP is no longer discarding requests for product data to be transmitted to PUES. XX is the narrowband line number.
END PUES XX RESP LOADSHED	Displayed at the end of PUES response message loadshed mode. This indicates that the PUP is no longer discarding response messages to be sent to PUES. XX is the narrowband line number.
END TRAINING MODE	Displayed when the operator requests the end of either connected or disconnected training mode while training mode is active. Normal operation of the PUP is resumed. Products can be received from RPGs and sent to PUES and Other Users as normal.
FILE ADDRESS ERROR XXXX	Indicates an attempt by a program to tell the disk file manager to write or read to an address outside of bounds of the allocated file. This should be reported to the software technician along with the X's which are status information about the program and file.
GRAPHICS RESET COMPLETED	Displayed when a graphics reset is successfully completed. This is displayed following an automatic graphics reset or one which is performed by the operator via the (C)ONTROL, (REI)NITIALIZE, (G)RAPHICS command.
GRAPHICS RESET REQUESTED	Displayed when a graphics reset is automatically performed or is performed by the operator via the (C)ONTROL, (REI)NITIALIZE, (G)RAPHICS command.
GRAPHIC SYS UNAVAILABLE	Displayed on the alphanumeric terminal when the graphic system becomes unavailable for data display. This is not a normal condition and indicates a graphic system hardware problem or power loss. The (C)ONTROL, (REI)NITIALIZE, (G)RAPHICS command should be issued in case the problem resulted from a temporary graphic system power loss. If it still does not work, a hardware technician should be contacted.
GRAPHIC SYSTEM TIMEOUT	Displayed on the alphanumeric terminal when an abnormal condition occurs which causes the graphic system to "hang". The system will automatically attempt to reset itself. The message may not appear and the automatic graphic reset may not occur for up to 30 seconds following the onset of the abnormal condition. A graphic system timeout results: a. When an attempt is made to display a particular prod-

uct or other data which is incorrectly formatted, most likely due to an RPG software error. The graphic system will automatically reset. The (C)ONTROL, (REI)NITIALIZE, (G)RAPHICS command could also be issued (or C;) to reset the graphics.

b. When the hardcopy device malfunctions. The graphic system will be automatically reset. The (C)ONTROL, (REI)NITIALIZE, (G)RAPHICS command could also be issued. The hardcopy device might require separate reinitialization or have a hardware problem.

c. When there is a graphic system hardware problem. That is indicated by the failure of the automatic graphic system reset and by the inability to successfully reset the graphic system via the (C)ONTROL, (REI)NITIALIZE, (G)RAPHICS command. A hardware technician should be contacted in this case.

GRAPHICS UNABLE TO RESET

Displayed on the alphanumeric terminal when the graphic system is not available following a system startup. This is not a normal condition and probably indicates an Operating System software problem or a graphic system hardware problem.

HARDCOPY COVER OPEN

Displayed when a hardcopy is requested and the printer front cover is open. The printer will not print with the cover open. Close the cover and reselect the hardcopy function.

HARDCOPY FAULT XXXX

Displayed when a hardcopy is requested and communication between the graphic system and the printer is incorrect. Powering down the printer for a short time might clear some errors. If the problem reoccurs, then contact a hardware technician. The status code indicated by XXXX should be provided to the technician.

HARDCOPY HARDWARE FAULT

Displayed when a hardcopy is requested and a printer hardware problem exists. Powering down the printer for a short time might clear some errors. If the problem persists, then contact a hardware technician.

HARDCOPY OUT OF PAPER

Displayed when a hardcopy is requested and the paper tray is empty or incorrectly installed. Refill or reposition the paper tray and reselect the hardcopy function.

HARDCOPY PRINT HEAD FAULT

Displayed when a hardcopy is requested and a print head fault exists. This condition can occur when the print head overheats. Wait a short time and reselect the hardcopy function. If the condition persists, or if the condition occurs frequently, then contact a hardware technician.

HARDCOPY RIBBON USED UP

Displayed when a hardcopy is requested and the roll of thermal transfer ribbon is used up. Replace the hardcopy

	ribbon and reselect the hardcopy function.
HARDCOPY UNAVAILABLE	Displayed when a hardcopy is requested and the printer is not available. If the printer is powered off, then turn the power on and reselect the hardcopy function. Otherwise, contact a hardware technician.
ILLEGAL RESTART	Displayed when a PUP restart request is made by the operator and the PUP is not shutdown.
INCOMPATIBLE ADAPTATION DATA	Displayed when the version number embedded in the adaptation data file read on startup a restart is incorrect. After this message is displayed, the PUP will no longer function. The PUP software should be brought down and a new adaptation data file loaded.
INVALID MAP DATA	The background map file contains illegal information and should be checked by the software technician responsible for background map file creation.
LINE xx CONNECTED TO zzzz	<p>Displayed when a dedicated or dial-out communications line hardware connects to an RPG.</p> <p>xx = communications line as shown on (S)tatus (C)ommunications screen.</p> <p>zzzz = RPG to which the line connected (4-letter mnemonic).</p>
LINE xx DISABLED	Displayed to indicate that dial-out to RPG communications line xx is software disabled by the PUP operator via a (C)ONTROL, (C)OMLINE, (D)ISCONNECT, xx command. Line xx is the line number shown on the (S)tatus (C)ommunications screen.
LINE xx ENABLED	Displayed to indicate that dial-out to RPG communications line xx is operator enabled for use by the PUP system. This is accomplished via a (C)ONTROL, (C)OMLINE, (C)ONNECT, xx command. Line xx is the line number shown on the (S)tatus (C)ommunications screen.
LINE xx HARDWARE DSCNCT	Displayed when communications line xx cannot connect to an RPG due to a hardware problem. Line xx is the line number shown on the (S)tatus (C)ommunications screen. The hardware technician should be notified.
LINE xx INIT COMPLETE	Displayed when initialization of a communication line occurs successfully. This message will always be preceded by the message LINE xx INITIALIZING. All communications on the affected card should now be available for use.
LINE xx INIT FAILED	Displayed when initialization of a communications line failed. This message will always be preceded by the mes-

sage LINE xx INITIALIZING. If the initialization fails, all communications lines on the effected card will be inoperative. A technician should be notified to further investigate the problem.

LINE xx INITIALIZING

Displayed when the communications software detected a problem which requires initialization of the communications hardware card. When this occurs, the software will automatically disconnect all lines on the effected communications card and issue an initialization command to the card. This process takes about one minute. If the initialization is successful, the message LINE xx INIT COMPLETE will be displayed and all dedicated lines which were connected before the initialization will be re-connected. Any dial-out lines which were connected at the time of initialization will be made available for subsequent dial-out requests.

LINE xx NO GSM FROM zzzz

Displayed when a general status message is not received over an RPG dial-up communications line. This will be followed by a LINE xx REQUESTED DSCNCT system status message.

xx = communications line as shown pn (S)tatus (C)ommunications screen.

zzz = RPG that did not send a general status message.

LINE xx REQUESTED DSCNCT

Displayed to indicate that communications line xx has been successfully hardware disconnected from an RPG due to one of the following:

- a. A (C)ONTROL, (C)OMLINE, (D)ISCONNECT, xx command has been entered by the PUP operator.
- b. The PUP has been placed in training mode by the operator.
- c. The PUP software requested the disconnection because all one-time product requests issued on dial-out line xx have been satisfied.
- d. PUP software has detected an error on line xx and is trying to recover by disabling and re-enabling the line. Another system status message reporting that error should accompany this one in that case.
- e. PUP software requested the disconnection because an RPG general status message was not received over dial-out line xx.

Line xx is the line number shown on the (S)tatus (C)ommunications Screen.

LINE xx TO zzzz IS NOISY	Displayed when communications line xx, which is connected to RPG zzzz, experiences noise. Line xx is the line number shown on the (S)tatus (C)ommunications Screen. It may take somewhat longer than usual to receive products from the RPG when this occurs.
LINE xx UNREQUESTED DSCNCT	Displayed when communications line xx is disconnected at the RPG end by the RPG software. Line xx is the line number shown on the (S)tatus (C)ommunications Screen. The line may have been disconnected due to a password failure.
LINE xx TO zzzz RTRND TO	Displayed when communications line xx, which is NORM connected to RPG zzzz, returns to normal from noisy. Line xx is the line number shown on the (S)tatus (C)ommunications screen.
MAP INDEX EXCEEDS LIMIT	Background maps are inaccessible. Index size in background map file is too large to fit into area provided within file manager (PUP software CPC 05). Contact the software technician responsible for PUP (CPC 05).
MAP n PIECE m DATA EXCEEDS LIMIT	Indicates that a map region (piece 0 indicates low resolution map and 1-16 indicate high resolution map pieces) that was just edited could not be saved because the amount of data was too large to fit into the allocated area on disk. Contact the software technician responsible for PUP file manager (CPC 05). Report "n" which is the map ID number and "m" which is the map piece.
MAP SET ARCH IN PROGRESS	Indicates automatic archive of map sets is active.
MAP SET WRITE DONE	Indicates completion of requested write of a map set.
X MIN LEFT FOR RCM EDITING	Displayed as a warning X minutes in advance of the actual editing completion time limit. The warning times are set in Adaptation Data Category #26. X = the number of minutes left for RCM editing. This message will beep and flash.
X MIN TO EDIT & SEND RCM	Displayed when another radar coded message is received while one is already being edited. X = the number of minutes the operator has to complete editing and send the first RCM back to the RPG.
XX MIN TO EDIT RCM	Displayed when the operator begins editing a radar coded message. XX = the number of minutes the operator has to complete editing.
MONITOR PERFORMANCE BEGIN	Displayed when monitor performance statistics gathering is begun via the (M)ONITOR PERFORMANCE, (B)EGIN command. Note, that system response times may now be

	slower due to monitor performance operations.
MONITOR PERFORMANCE END	Displayed when monitor performance statistics gathering is ended manually, via the (M)ONITOR PERFORMANCE, (E)ND command.
MON PERF AUTO END,FILE FULL	Displayed when the monitor performance statistics gathering ends automatically because the Performance Monitor file on disk has filled up. This occurs after the 99th monitor performance period is recorded. If more performance monitoring is desired, the data may be archived (see paragraph 10-2.7 Archive Monitor Performance File.) and Monitor Performance begun again.
NEW RCM X MIN TO STRT EDIT	Displayed when a subsequent radar coded message is received from the RPG while the current radar coded message is being edited. X = the number of minutes the operator has to start editing the incoming RCM. This message will beep and flash.
NO ADAPT. PHONE NO. FOR zzzz	Indicates that the telephone number for the dial-up RPG mnemonic zzzz is not available in adaptation data. Products cannot be requested from this RPG. Also, if no RPG is found, ??? are displayed in place of the RPG mnemonic. This should be reported to the software technician or correctly entered into the adaptation data.
NO COMM. LINE TO SEND RCM	There is no connected dedicated line to send a Radar Coded Message. After reconnection of a dedicated line, a new RCM must be requested from the RPG for editing.
NO LINE TO SND PUP MSG TO	There is no connected dedicated line to send a RPGPUP/RPGOP to RPG Status message.
NO PRODUCTS AVAILABLE	Displayed at PUP startup/restart if there are no weather products available in the PUP data base.
OTHER USER DED XX CONNECTED	Displayed when a dedicated Other User narrowband line hardware connects. This indicates that the current NEXRAD Unit status is sent to the Other User, and Other User processing may begin. XX is the narrowband line number.
OTHER USER DSCNCTED LINE XX	Displayed when the a dial-in Other User program disconnected the communications line on its end prior to the scheduled end of its communications session with the PUP. XX is the narrowband line number.
OTHER USER LINE XX CONNECTED	Displayed when the narrowband line for a dial-in Other User connects and the signon message, which was sent to the PUP, has passed security validation procedures. The message indicates that the operations have commenced to send data to the Other User. XX is the narrowband line number.

OTHER USER LINE XX DISABLED	Displayed to indicate that dial up communication line XX is software disabled by the PUP via a (C)ONTROL, (C)OMLINE, (D)ISCONNECT, XX. XX is the narrowband line number.
OTHER USER LINE XX DSCNCTED	<p>Displayed:</p> <ul style="list-style-type: none">a. When the Other User line XX is hardware disconnected resulting from a disconnect command issued by the PUP operator.b. When transmission to a current Other User completes and the PUP disconnects the line to allow for another Other User to make a request. XX is the narrowband line number.
OTHER USER LINE XX ENABLED	Displayed to indicate Other Users may dial in for data. This is accomplished via a (C)ONTROL, (C)OMLINE, (C)ONNECT, XX. XX is the narrowband line number.
OTHER USER XX CNCT PENDING	Displayed when a dedicated Other User is enabled (on startup or from a connection) but the Other User program has not connected the line at the other end. XX is the narrowband line number.
OTHER USER XX DSCNCTED BY	Displayed when an Other User has made a third PUP illegal one-time product request for a product not marked for Other User distribution. Also displayed when the last product on the availability list has been sent to the Other User for the distribution method which requires a single set of products to be transmitted once and then for the line to be disconnected by the PUP. XX is the narrowband line number.
OTHER USER XX DSCNCT PENDING	Displayed to indicate the PUP operator has requested that a dedicated Other User line be disconnected. This will normally be followed by an OTHER USER LINE XX DSCNCTED system status message to verify that the line has successfully been disconnected. XX is the narrowband line number.
OTHER USER XX HARDWARE ERROR	Displayed when there is a hardware problem on the Other User communications line. XX is the narrowband line number.
OTHER USER XX PORT TIMEEXPR	Displayed when the maximum port connection time granted to a dial-in Other User has expired, and the PUP begins to disconnect the Other User so that another Other User may dial in. This maximum connection is defined in adaptation data and may be overridden by a privileged Other User to allow a maximum connection time not exceeding 24 hours. XX is the narrowband line number.

OTHER USER XX PROD LOADSHED	Displayed at the onset of Other User product request loadshed mode. This message indicates either that products marked for distribution to Other Users are being received from the RPG faster than the PUP is capable of transmitting them to an Other User, or that an Other User is making one-time product requests at a rate which exceeds the PUP's ability to process them. In either case, the extra requests for data are being discarded. XX is the narrowband line number.
OTHER USER XX REQUEST LOST	Displayed when there is no read buffer present on the Other User line to capture a request message being sent to the PUP by an Other User. This indicates either that messages are being sent to the PUP at an extremely fast rate which exceeds the PUP's ability to receive them, or that the communications software is not running properly (which should be reported to a software technician). XX is the narrowband line number.
OTHER USER XX REQST TOO LONG	Displayed when a message being sent to the PUP from an Other User is too large to fit into one of the communications line read buffers. The request is thus lost. XX is the narrowband line number.
OTHER USER XX RESP LOADSHED	Displayed at the onset of Other User response message loadshed mode. This message indicates that PUP generated response messages are being produced faster than they can be transmitted to the Other User. This means that the PUP is discarding messages which will not fit on its transmission queue. XX is the narrowband line number.
OTHER USER XX SIGNON ABORTED	Displayed when a dial-in Other User, following physical dial-in connection with the PUP, decides to hang up prior to the transmission of a signon message. XX is the narrowband line number.
OTHER USER XX SIGNON TIMEOUT	Displayed when a dial-in Other User fails to send the PUP a sign-on request message within one minute of physical dial-in line connection. The line is disconnected by the PUP so another Other User can dial up. XX is the narrowband line number.
OTHER USER XX TIMEOUT ERROR	Displayed when a timeout has occurred on an Other User communication line. XX is the narrowband line number.
OTHER USER XXXX BAD SIGNON	Displayed when an invalid sign-on message has been received from a dial-in Other User. The PUP disconnects the line to allow another Other User to connect and make a sign-on request. xxxx is the Other User four-digit source ID extracted from the sign-on message.
OTHER USER XXXX PASSWD FAILED	Displayed, following physical line connection with the PUP, when the PUP has rejected a dial-in Other User

	<p>signon request because the Other User's passwords have failed the PUP's security validation procedures. This indicates the Other User signon password and/or the Other User port password does not match the expected passwords contained in PUP adaptation data. xxxx = the Other User four digit source ID extracted from the signon message. At this point, the PUP sends the Other User a response message and disconnects the line so that another Other User can attempt signon.</p>
OTHER USER XXXX SIGNON	<p>Displayed when a dial-in Other User, following FAILED physical dial-in connection with the PUP, transmits a non-signon message when the PUP is expecting to receive a signon request message. Since any request prior to a signon request is considered out of sequence, the Other User is disconnected by the PUP. xxxx is the Other User's four-digit source ID extracted from the sign-on message.</p>
PRODUCT ERROR n xxx yyyy	<p>Displayed when the program which sends data to PUES or Other Users finds problems with the product data which was generated by the RPG software. This normally indicates a problem in the RPG software which generated the product. When reporting this error to a higher authority include the code numbers in the message:</p> <p>n = product ID number. (This is the same as the product ID numbers familiar to the PUP operator.)</p> <p>xxx = code for type of error found in the data.</p> <p>yyyy = additional code the meaning of which varies depending on xxx.</p>
PROD STAT = xxxxxxxxxxxxxxxx	<p>Displayed when the product generation capability or distribution capability over the dedicated RPG link of the local NEXRAD unit changes from xxxxxxxxxxxxxxxx = AVAILABLE or LOAD SHED to UNAVAILABLE or back again. This is shown on the NEXRAD Unit Status display. When this appears, the alphanumeric terminal will beep and the NEXRAD Unit Status display will automatically display on the left graphic screen.</p>
PTM LOST DUE TO I/O ERROR	<p>Displayed whenever an error occurs while trying to read the new or edited version of a PUP Text Message from the alphanumeric terminal into the computer. The PTM will not be saved. If this occurs repeatedly, it should be reported. It could be a hardware or software problem.</p>
PUES LINE XX CONNECT PENDING	<p>Displayed when a PUES line is enabled (on startup or from a connection) but the PUES program has not connected the line at the other end. XX is the narrowband line number.</p>

PUES LINE XX CONNECTED	Displayed when a dedicated PUES narrowband line hardware connects. This indicates that the current NEXRAD Unit Status is sent to PUES and PUES processing may begin. XX is the narrowband line number.
PUES LINE XX DSCNCT PENDING	Displayed to indicate the PUP operator has requested that a PUES line be disconnected. This will normally be followed by a PUES LINE XX DISCONNECTED system status message to verify that the line has successfully been disconnected. XX is the narrowband line number.
PUES LINE XX DISCONNECTED	Displayed when a dedicated PUES narrowband line is hardware disconnected resulting from a PUP operator issued command to disconnect. XX is the narrowband line number.
PUES LINE XX HARDWARE ERROR	Displayed when there is a hardware problem on the PUES communication line. XX is the narrowband line number.
PUES LINE XX UNREQ DSCNCT	Displayed when a PUES program disconnected the communication line from its end. XX is the narrowband line number.
PUES LINE XX PROD LOADSHED	Displayed at the onset of PUES product request loadshed mode. This message indicates either that products marked for distribution to PUES are being received from the RPG faster than the PUP is capable of transmitting them to PUES, or that the PUES is making one-time product requests at a rate which exceeds the PUP's ability to process them. In either case, the extra requests for data are being discarded. XX is the narrowband line number.
PUES LINE XX RESP LOADSHED	Displayed at the onset of PUES response message loadshed mode. This message indicates that PUP generated PUES response messages are being generated faster than they can be transmitted to the PUES. This means that the PUP is discarding messages which will not fit on its transmission queue. XX is the narrowband line number.
PUES LINE XX TIMEOUT ERROR	Displayed when a timeout error has occurred on a PUES communication line. XX is the narrowband line number.
PUP RESTART XXXXXXXXX	Displayed after a PUP restart is performed. XXXXXXXXXX = the current version of the PUP software.
PUP SHUTDOWN OCCURRED	Displayed when an immediate shutdown is performed via the (C)ONTROL, (S)HUTDOWN, (I)MMEDIATE command.
PUP STARTUP XXXXXXXXX	Displayed after a PUP coldstart or powerfail recovery. XXXXXXXXXX = the current version of the PUP software.
PUP WILL SHUTDOWN AT HH:MM	Displayed when a normal shutdown is performed via the (C)ONTROL, (S)HUTDOWN, (N)ORMAL command.

	HH:MM is the time at which the PUP shutdown will occur.
RCM LOST DUE TO I/O ERROR	Displayed whenever an error occurs while trying to read an edited version of a Radar Coded Message (RCM) from the alphanumeric terminal into the PUP computer. The edited RCM will not be saved. If this occurs repeatedly, it should be reported. It may be a hardware or software problem.
RCM READY X MIN TO STRT EDIT	Displayed when a Radar Coded Message is received from the RPG and is ready for editing to begin. The radar coded message editing flag (Adaptation Data Category #2) must be set for the message to appear. This message will blink and cause the alphanumeric terminal to beep. X = the number of minutes the operator has to start editing.
RDA ALARM= CNCLDxxxxxxxxxxxx	Displayed when an RDA alarm is reported as shown on the NEXRAD Unit Status display. xxxxxxxxxxxx = the RDA alarm being reported. These messages are described in paragraph 8-1.1 NEXRAD Unit Status .
RDA AVAL= xxxxxxxxxxxxxxxxxxxx	Displayed when the RDA Hardware Availability Status as shown on the NEXRAD Unit Status display changes. xxxxxxxxxxxx = the current RDA Hardware Availability Status. These messages are described in paragraph 8-1.1 NEXRAD Unit Status .
RDA SOFT= xxxxxxxxxxxxxxxxxxxx	Displayed when the RDA Software Status as shown on the NEXRAD Unit Status display changes. xxxxxxxxxxxx = the current RDA Software Status. These messages are described in paragraph 8-1.1 NEXRAD Unit Status .
REQUEST LIMIT FOR RPG zzzz	Generated when the one-time request limit to RPG zzzz has been searched. Wait for some of the requests to be filled before resending the request.
REQUEST QUEUED TO RPG zzzz	Generated when a request cannot be immediately sent to RPG zzzz. The request will be transmitted when communications to the RPG are established.
RPG ALERT THRESHOLDS RCVD	An RPG alert threshold code list message has been received from the associated RPG.
RPG ALARM= xxxxxxxxxxxxxxxxxxxx	Displayed when an RPG alarm is reported as shown on the NEXRAD Unit Status Display. xxxxxxxxxxxx = the RPG alarm being reported. These messages are described in paragraph 8-1.1 NEXRAD Unit Status .
RPG AVAL= xxxxxxxxxx	Displayed when the RPG Hardware Availability Status as shown on the NEXRAD Unit Status display changes. xxxxxxxxxx = the current RPG Hardware Availability Status. These messages are described in paragraph 8-1.1 NEXRAD Unit Status .

RPG ELEVATION ERROR	Displayed when the list of elevation angles received from the local RPG contains angles which are out of order, or exceed the elevation angle limits. This indicates a software bug in the RPG.
RPG ERROR xxx	Displayed when the PUP software detects an error in a message received from an RPG (invalid information). xxx is an error code which should be reported to the software technician. This usually indicates a bug in the RPG software. PUP functionality is not affected by the error. The C5 documentation for PUP software (CPC 03) should describe what the code number means to the software technician.
RPG MSG DISCARDED, TR MODE	Displayed when an invalid message is received from the RPG and the PUP is in connected training mode.
RPG NRRWBND = xxxxxxxxxxxx	Displayed when the RPG to PUP dedicated Narrowband Communication Status as shown on the NEXRAD Unit Status display changes. xxxxxxxxxxxx = the current RPG Narrowband Status. These messages are described in paragraph 8-1.1 NEXRAD Unit Status .
RPG PROD DISCARDED, TR MODE	Displayed when a product or product annotation is received from the RPG and the PUP is in connected training mode. If the product or product annotation contains an alert sequence, the product is not discarded and this message is not displayed.
RPG SOFT = xxxxxxxxxxxx	Displayed when the RPG Software Status as shown on the NEXRAD Unit Status display changes. xxxxxxxxxxxx = the current RPG Software Status. These messages are described in paragraph 8-1.1 NEXRAD Unit Status .
S309M1 COMM. SOFTWARE N/A	This status message is a result of a deficiency in the communications interface software, S309M1, indicating that it is either paused or not present. If the problem continues, the recommended action would be to take the PUP down (PUPDOWN), and then up (PUPUP), on the system console, restarting S309M1 along with CPCI 04, the PUP software. The problem should be reported to a software technician.
S309M1 LNXX ALREADY DSCNCTD	Displayed when a PUP operator requests the disconnection of a line that is already disconnected. Line XX is the line number shown on the (S)tatus (C)ommunications screen.
S309M1 LNXX SVC1 ERROR	Displayed when communications line XX cannot connect to an RPG due to an SVC1 Error on a Connect hardware problem. Line XX is the line number shown on the (S)tatus (C)ommunications screen. The hardware technician should be notified.

S309M1 XXX RPG COMM. ERROR	Displayed when an error is detected in the communications interface software (S309M1). xxx is an error code which should be reported to the software technician. Communications may be degraded due to the error. Report this error to a software technician.
zzzz SENT NON-STORABLE ppp	<p>The weather product ppp received from RPG zzzz could not be stored by the PUP due to one of the following:</p> <ol style="list-style-type: none">Bad data in the product message sent from the RPG.PUP disk failure. (This would show up as a message on the PUP system status line indicating a disk failure. <p>This message should be reported to the software or hardware technician, as appropriate.</p>
SOFTWARE STAT xxx y	This message appears because an internal check within the PUP software has detected an illegal condition caused by the PUP software itself. These messages were included for software debug purposes and should not appear in an operational PUP. If they do, they should be reported, including the xxx and y error codes, to a software technician. In general, they represent from no degradation to only a modest degradation of PUP functionality. The first x digit is the CPC (program) number reporting the problem within the PUP software.
STATUS AUTO ARCH PAUSED	Indicates the archive function is paused and no other request will be processed until the function is resumed or canceled.
STATUS AUTO ARCH RESUMED	Indicates status automatic archive is resumed on the current drive.
STATUS AUTO ARCH STARTED	Indicates request to automatically archive status messages has been processed and status automatic archive is active.
STATUS INDEX NOT FOUND	Indicates status index identified in received control packet is not found in PMASTER file.
STATUS MESSAGES NOT FOUND	Indicates there are no status messages associated with the indices on the optical disk.
TAPE UNIT ILLEGAL LU ERR	Indicates that an illegal logic unit has been assigned or not assigned properly to the optical disk.
TAPE UNIT PARITY ERR	Indicates that the data on the streamer tape is unreadable by the archive function.
TAPE UNIT UNDEFINED ERROR XXXX	Indicates on streamer tape an error other than those defined is detected. These errors should not occur in

	the operational PUP. If they do, they should be reported, including the XXXX error code, to a software technician.
TAPE UNIT UNAVAILABLE ERR	Indicates streamer tape unit is off-line, streamer tape is not active in the drive, streamer tape is write protected, or this device is not set up in the Hardware Implementation Adaptation Data category #9.
TAPE UNIT UNRECOV ERR	Indicates that an archive unit hardware input/output unrecoverable error has occurred. Hardware maintenance should be contacted if this condition does not correct itself.
TIME OUT CAN'T EDIT RCM	Displayed when the time limit to begin editing a radar coded message has expired. This message will beep.
TIME OUT CAN'T SEND RCM	Displayed when the time limit to send a radar coded message back to the RPG for distribution has expired. This message will beep.
TL LOOP # n FULL	This message serves simply as notification to the operator that the time lapse sequence number n, that was defined as a continuous update sequence, has reached its defined number of frames. Update does not stop at this point but will now continue with the deletion of the oldest frame for each new one added.
VOL COV PAT= xxxx	Displayed when the volume coverage pattern of the local NEXRAD unit RDA has changed. xxxx = the current volume coverage pattern.
WEATHER MODE CHANGE x TO y	Displayed when the weather operational mode of the local NEXRAD unit is changed. x = the old weather operational mode; y = the current weather operational mode.

8-2.10 RPG Product Request Status Lines.

Location:

Graphic display:	Double status line directly below the graphic product queue indicator lines on the graphic display (see APPENDIX D)
Alphanumeric display:	Single status line in the lower right corner of the alphanumeric display (same number of characters as graphic double line display) (see APPENDIX A)

Color:

Graphic display:	Cyan blue
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Format: The format and contents of these messages are described in paragraph [8-2.10.1 RPG Product Status Lines Contents Explanation](#).

The types of messages that can appear on this line are as follows:

Product Received messages
 Product Overdue messages
 Communication line messages
 Message received messages
 Error messages

Function: To inform the user of products that have been received from the RPG and other RPG communications status.

Notes: The message will remain until replaced with another message or blanked due to display operations.

8-2.10.1 RPG Product Status Lines Contents Explanation.

The following is an alphabetized list of the possible contents of this status line along with an explanation of each.

ALERT DEFINITION NOT SENT TO RPG	Displayed when the alert category and grid definition message could not be sent to the associated RPG due to a PUP software error reported separately via a system status message (see paragraph 8-2.9.1 System Status Lines Contents Explanation.).
bb BACKGROUND MAP RECEIVED FROM zzzz	Indicates that a requested background map (bb) has been received from RPG zzzz over an RPG dial-up communications line. bb = mnemonic of the requested background map (see paragraph 8-2.5 Background Maps Unavailable. for the map mnemonics). zzzz = RPG from which the background map was received.
CONNECTION PENDING DED. RPG LINE xx	Indicates that the PUP is waiting for communications line xx to connect to the associated RPG. Line xx is the line number shown on the (S)tatus (C)ommunications screen. The line needs yet to be connected at the RPG end for the connection to complete.
DED. RPG LINE xx DISCONNECTED	Displayed when a communications line disconnects from the associated RPG. Line xx is the line number shown on the (S)tatus (C)ommunications screen. This is due to any cause. The accompanying system status line message will indicate the cause.
DEDICATED RPG LINE xx CONNECTED	Displayed when communications line xx hardware connects to the associated RPG. Line xx is the line number shown on the (S)tatus (C)ommunications screen. This means the RPG software is up and running and has connected the line.
INVALID PASSWORD SENT TO zzzz	Displayed when RPG zzzz receives an invalid PUP ID, an invalid port password, or an invalid user password from the PUP.
NO COMLINE TO SEND ALERT DEF. TO RPG	Displayed when the alert category and grid definition messages cannot be sent to the 2associated RPG because there is no dedicated communication line connected to it.

These messages are normally sent automatically by the PUP whenever the operator changes one of their definitions. In this case, the definitions will be sent automatically when the line does connect.

NO COMMUNICATION FROM RPG
LINE xx

Indicates that the information needed for the NEXRAD Unit Status display was not received from the RPG upon the connection of line xx. Line xx is the line number shown on the (S)tatus (C)ommunications screen. The RPS Request List is not automatically issued by the PUP to the RPG until this information is received. This would normally indicate a software problem in the associated RPG.

NON-STORABLE MAP RECEIVED
FROM zzzz

Displayed when the background map received from RPG zzzz could not be stored by the PUP due to one of the following:

- a. Bad data in the map message sent from the RPG.
- b. PUP disk failure. (This would show up as a message on the PUP system status line indicating a disk failure.)

This message should be reported to the software or hardware technician, as appropriate.

NON-STORABLE PROD.
ANNOTATIONS RCVD.

Displayed when product annotations received from an RPG could not be stored by the PUP due to one of the following:

- a. Bad data in the product annotations (RPG software problem).
- b. PUP disk failure (reported separately on the PUP system status line).

This message should be reported to the software or hardware technician, as appropriate.

NON-STORABLE PRODUCT LIST
RCVD.

Displayed when the RPG Products Available list received from the associated RPG could not be stored by the PUP due to one of the following:

- a. Bad data in the list message (RPG software problem).
- b. PUP disk failure (reported separately on the PUP system status line).

This message should be reported to the software or hardware technician, as appropriate.

ppp AVAIL N/SC ttt zzzz
hhmm sss eeee

Displayed when RPG (zzzz) reports that the product will available on the next volume scan.

ppp = product requested (Product ID mnemonic)

ttt = type of request:
OTA - one time request from an associated RPG
OTN - one time request from a non-associated RPG
RPS - request is on the RPS list
UNS - unsolicited
zzzz = RPG to which the request was sent
hhmm = time of the product requested

sss = resolution of the product requested
eeee = elevation of the product requested (if applicable)

ppp BAD PRD ID ttt zzzz
hhmm sss eeee

Displayed when RPG (zzzz) reports that the PUP transmitted an invalid product ID.

ppp = product requested (Product ID mnemonic)
ttt = type of request:
OTA - one time request from an associated RPG
OTN - one time request from a non-associated RPG
zzzz = RPG to which the request was sent
hhmm = time of the product requested
sss = resolution of the product requested
eeee = elevation of the product requested (if available)

ppp GEN FAULT ttt zzzz
hhmm sss eeee

Displayed when RPG (zzzz) reports that the product requested encountered a generation process fault (one time).

ppp = product requested (Product ID mnemonic)
ttt = type of request:
OTA - one time request from an associated RPG
OTN - one time request from a non-associated RPG
zzzz = RPG to which the request was sent
hhmm = time of the product requested
sss = Resolution of the product requested
eeee = elevation of the product requested (if applicable)

ppp ILL REQUEST ttt
zzzz hhmm sss eeee

Displayed when RPG (zzzz) reports that the PUP has requested a product which the PUP is not authorized to receive.

ppp = product requested (Product ID mnemonic).
ttt = type of request (RPS, OTA, or OTN)
zzzz = RPG to which the product request was sent (4-letter mnemonic).
hhmm = time of the product requested
sss = resolution of the product requested (if applicable)
eeee = elevation of the product requested (if applicable).

ppp ILL MSGCD ttt zzzz
hhmm sss eeee

Displayed when RPG (zzzz) reports that the PUP transmitted an invalid message code.
ttt = type of request (RPS, OTA, or OTN)
zzzz = RPG to which the product request was sent (4-letter mnemonic).

<p>ppp LDSHED(NB) ttt zzzz hhmm sss eeee</p>	<p>hhmm = time of the product requested sss = resolution of the product requested (if applicable) eeee = elevation of the product requested (if applicable).</p> <p>Displayed when RPG (zzzz) reports that the product requested was narrowband loadshed.</p> <p>ppp = product requested (Product ID mnemonic) ttt = type of request: OTA - one time request from an associated RPG OTN - one time request from a non-associated RPG RPS - request is on the RPS list</p>
<p>UNS - unsolicited</p> <p>ppp LDSHED(RC) ttt zzzz hhmm sss eeee</p>	<p>zzzz = RPG to which the request was sent hhmm = time of the product requested sss = resolution of the product requested eeee = elevation of the product requested (if applicable)</p> <p>Displayed when RPG (zzzz) reports that the product requested was RPG CPU loadshed.</p> <p>ppp = product requested (Product ID mnemonic) ttt = type of request: OTA - one time request from an associated RPG OTN - one time request from a non-associated RPG RPS - request is on the RPS list UNS - unsolicited</p>
<p>ppp LDSHED(RM) ttt zzzz hhmm sss eeee</p>	<p>zzzz = RPG to which the request was sent hhmm = time of the product requested sss = resolution of the product requested eeee = elevation of the product requested (if applicable)</p> <p>Displayed when RPG (zzzz) reports that the product requested was RPG memory loadshed.</p> <p>ppp = product requested (Product ID mnemonic) ttt = type of request: OTA - one time request from an associated RPG OTN - one time request from a non-associated RPG RPS - request is on the RPS list UNS - unsolicited</p>
<p>ppp UNAVAIL(SL) ttt zzzz hhmm sss eeee</p>	<p>zzzz = RPG to which the request was sent hhmm = time of the product requested sss = resolution of the product requested eeee = elevation of the product requested (if applicable)</p> <p>Displayed when RPG (zzzz) reports that the product request was not generated due to the unavailability of real-time, replay or customized slots.</p> <p>ppp = product requested (Product ID mnemonic)</p>

ttt = type of request:
OTA - one time request from an associated RPG
OTN - one time request from a non-associated RPG
RPS - request is on the RPS list
UNS - unsolicited
zzzz = RPG to which the request was sent
hhmm = time of the product requested
sss = resolution of the product requested
eeee = elevation of the product requested
(if applicable)

ppp NOT GEN ttt zzzz hhmm
sss eeee

Displayed when RPG (zzzz) reports that the product requested was not generated.

ppp = product requested (Product ID mnemonic)
ttt = type of request:
OTA - one time request from an associated RPG
OTN - one time request from a nonassociated RPG
RPS - request is on the RPS list
UNS - unsolicited
zzzz = RPG to which the request was sent
hhmm = time of the product requested
sss = resolution of the product requested
eeee = elevation of the product requested
(if applicable)

ppp UNAVAl(TF) ttt zzzz
hhmm sss eeee

Displayed when RPG (zzzz) reports that the product is unavailable due to RPG processing task failed.

ppp = product requested (Product ID mnemonic)
ttt = type of request
OTA - one time request from an associated RPG
OTN - one time request from a non-associated RPG
RPS - request is on the RPS list
UNS - unsolicited
zzzz = RPG to which the request was sent
hhmm = time of the product requested
sss = resolution of the product requested
eeee = elevation of the product requested
(if applicable)

ppp UNAVAl(TU) ttt zzzz
hhmm sss eeee

Displayed when RPG (zzzz) reports that the product requested is unavailable due to RPG processing task not being available.

ppp = product requested (Product ID mnemonic)
ttt = type of request
OTA - one time request from an associated RPG
OTN - one time request from a non-associated RPG

RPS - request is on the RPS list
UNS - unsolicited
zzzz = RPG to which the request was sent
hhmm = time of the product requested

ppp UNAVAL(MD) ttt zzzz
hhmm sss eeee

sss = resolution of the product requested
eeee = elevation of the product requested (if applicable)

Displayed when RPG(zzzz) reports that the product requested is unavailable due to moment being disabled.

ppp = product requested (Product ID mnemonic)
ttt = type of request
OTA - one time request from an associated RPG
OTN - one time request from a non-associated RPG
RPS - request is on the RPS list
UNS - unsolicited
zzzz = RPG to which the request was sent
hhmm = time of the product requested
sss = resolution of the product requested

eeee = elevation of the product requested
(if applicable)

PROD OVERDUE: ppp zzzz
hhmm sss eeee

Displayed when the PUP software determines it has been waiting too long for a one-time requested product and the RPG has not made any type of response to it.

ppp = product requested (Product ID mnemonic).
zzzz = RPG to which the request was sent
(4-letter mnemonic).
hhmm = time of the product requested.
sss = resolution of the product requested (if applicable).
eeee = elevation of the product requested (if applicable).

At the time of this writing, the PUP software waits 12 minutes for RPS request products and 11 minutes for one-time request products before reporting the product overdue.

Frequent occurrence of this message may indicate an RPG software problem.

PROD RCVD: ppp ttt zzzz
hhmm sss eeee

Displayed when a product is received from an RPG.

ppp = name of product received (Product ID mnemonic).
ttt = code for the reason why the product was sent by the RPG:
"OT" - The product was requested via a one-time product request.
"RPS" - The product is on the RPS request list.
"ALR" - The product was generated due to an alert condition.
"UNS" - The product was unsolicited; PUP has no record of requesting the product. This is valid in the case of something like a Free Text Mes-

sage the RPG may send unsolicited.
 zzzz = RPG from which the product was received
 (4-letter mnemonic).
 hhmm = the volume scan time of the product received. If the
 product was a response to a one-time product
 request (by time), this may be up to several
 minutes off from the requested time.
 sss = resolution of the product received (if applicable).
 eeee = elevation of the product received (if applicable).

PRODUCT LIST RECEIVED FROM
 zzzz

Displayed to indicate that a requested RPG
 Products Available list has been received from RPG zzzz.
 A request for this list is issued to the RPG via the
 (S)TATUS, (R)PG PRODUCTS AVAILABLE, (R)EQUEST
 NEW command at the PUP.

In this case the zzzz will always be the associated RPG.
 The list may now be displayed via the (S)TATUS, (R)PG
 PRODUCTS AVAILABLE, (D)ISPLAY LAST command.

REQUEST VOID: ppp zzzz
 hhmm sss eeee

Displayed when a one-time product request made
 by the operator could not be sent to a non- associated RPG.

ppp = product requested (Product ID mnemonic).
 zzzz = RPG to which the request was to be sent
 (4-letter mnemonic).
 hhmm = time of product requested.
 sss = resolution of the product requested (if applicable).
 eeee = elevation of the product requested (if applicable).

This message is always accompanied by a feedback or sys-
 tem status message to explain why the request was not
 sent. An accompanying system status message should be
 reported to a software or hardware technician, as appro-
 priate.

RPG zzzz LINE BUSY NO
 REQUEST SENT

Displayed when a one-time product request could not
 be sent to RPG zzzz over a dial-up communication line
 because the RPG's dial-in telephone line was busy. It is up
 to the operator to repeat the request, if desired.

RPG zzzz LINE OFF HOOK

This would only result from problems with the communi-
 cations interface software (S309M1). The one-time prod-
 uct request made by the operator is not sent to RPG zzzz.
 This message should be reported to the software techni-
 cian.

RPG zzzz NO ANSWER NO
 REQUEST SENT

Displayed when a one-time product request could not
 be sent to RPG zzzz over a dial-up communication line
 because the RPG did not answer. The probable cause is
 that the RPG's software is not up. It is up to the operator

to try the request later, if desired.

RPS REQUEST NOT SENT
FOR LINE xx

Displayed when an RPS request list was not sent to the RPG because of a PUP software problem. Line xx is the line number shown on the (S)tatus (C)ommunications screen. The software problem will be reported separately via a system status message.

xx RPS PRODUCTS OVERDUE

Displayed when the PUP software determines that more than one RPS product is overdue. If only one is overdue, it is reported via the PROD OVERDUE message which defines the product. xx is the number of products overdue. This message is reported approximately once per 12 minutes, when it applies.

UNABLE TO CONNECT DED.
RPG LINE xx

Displayed when communications line xx could not be connected to the associated RPG because of a software or hardware problem. Line xx is the line number shown on the (S)tatus (C)ommunications screen. The problem is reported separately via a system status message.

USER ALERT MESSAGE
OVERDUE FROM RPG

Displayed when a weather alert notification is received from the associated RPG, but is not followed by a user alert message product within 12 minutes.

8-2.11 Alphanumeric Product Queue Indicator.

Location: Single status line directly above the RPG product Request Status line on the right side of the alphanumeric display (see [APPENDIX A](#)).

Format: Qxx nnn rrrr hhmm t

where: xx is the number of products on the queue (1-10). nnn is the product name mnemonic of the earliest product on the queue.
rrrr is the RPG mnemonic from which nnn originated.
hhmm is the time of day at which nnn was generated.

Function: Describes the number of products on the alphanumeric queue and the next alphanumeric product to be displayed with the function key DISPLAY QUEUED ALPHA PRODUCT. This product will be the oldest product on the queue.

The queue will hold a maximum of ten products. When the queue is full and more alphanumeric products are received from the RPG (or from optical disk in training mode), the oldest product on the queue will be discarded and the latest received placed at the top of the queue.

Notes: If no products are on the queue, i.e., all products on the queue have either been displayed, acknowledged, or cleared, this line will display:

QUEUE EMPTY

If auto alpha mode is active this line will display:

AUTO ALPHA MODE

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and alphanumeric products that are received from the RPG will be automatically displayed. Selection of auto alpha mode will clear this queue.

Section 8-3: Alerts

Weather alerts are indicated at the PUP by the alert display lines described in Section 8.3.1 and the Alert Status Display described in Section 8.3.2. Alert products (graphic and/or alphanumeric) are also received with generated alerts. These are displayable via normal product display methods. In addition, alerts are filed in the system status file.

8-3.1 Alert Status Lines (Weather Alerts).

Location:

Graphic display: Last three status lines (immediately below the graphic feedback lines on the graphic displays). The first two lines indicate unacknowledged alerts and the last indicates operator acknowledged alerts (see [APPENDIX D](#)).

Alphanumeric display: Double status line directly above the system status line on the bottom portion of the alphanumeric screen. The first line is unacknowledged alerts. The second is operator acknowledged alerts (see [APPENDIX A](#)).

Color:

Graphic display: White (The word "ALERTS:" flashes magenta alternating with white if an unacknowledged alert is present.)

Format: ALERTS: 1) xy xy...xy 2) xy xy...xy

where: 1) and 2) indicate the alert area number for which the alerts have been reported.

xy is the alert being reported where:

x is the alert group (Grid, Volume, or Forecast).

y is the alert type as follows:

Grid Group Alerts:

GV = Velocity, GR = Composite Reflectivity, GT = Echo Tops, GP = Severe Weather Probability, GL = Vertically Integrated Liquid

Volume Group Alerts:

VD = VAD, VZ = Maximum Hail Size, VM = Mesocyclone, VS = TVS, VR = Maximum Storm Reflectivity, VH = Probability of Hail, VA = Probability of Severe Hail VT = Storm Top,

VP = Max. 1 Hr. Precipitation

Forecast Group Alerts:

FZ = Maximum Hail Size, FM = Mesocyclone, FS = TVS, FR = Maximum Storm Reflectivity, FH = Probability of Hail, FA = Probability of Severe Hail, FT = Storm Top

Function: Describes the acknowledged and unacknowledged weather alerts for each alert area. Weather alerts are triggered at the RPG based on parameters (areas, alert categories, and threshold level numbers) sent from each individual associated PUP that gets notification. The alert area parameters (two areas) are determined by PUP adaptation data definitions which are modifiable via the PUP graphic tablet ([Chapter 12](#)). In addition, the alert categories, threshold conditions, and a request to send an accompanying graphic product or products are determined by the PUP adaptation data ([Chap-](#)

[ter 13](#)). These are modifiable via the PUP Adaptation Data Alert Processing edit screen on the alphanumeric terminal.

When, according to these PUP defined conditions, the RPG determines that an alert condition has just gone into effect, it sends notification to the appropriate PUP, accompanied by an alphanumeric product called the "User Alert Message". If so specified, accompanying graphic product(s) are also sent automatically to the PUP. Note that the type of the accompanying graphic product(s) is determined by the RPG, not the PUP.

When the new alert condition arrives at the PUP, the alert area and type of alert are displayed on the "Unacknowledged Alert" status lines of all three PUP screens. If additional alerts arrive prior to an acknowledgement, they will be added to the lines. If an alert condition is determined as no longer in effect by the RPG, the PUP will be notified and it will be removed from the alert status lines whether it has been acknowledged or not. The RPG should send no more than one type of alert per alert area. An exception to this is, when an ALERT REQUEST MESSAGE is sent to the RPG due to editing the alert AREA and/or CATEGORIES at the PUP. In this case, the RPG will issue new alerts for all alert conditions detected in the next volume scan based on the new alert environment. Alerts will be displayed in order of importance (e.g., a mesocyclone alert would be displayed on the list in front of a composite reflectivity alert, i.e., ALERTS: 1) VM GR). One reason for this is that the graphic displays have limited room for the display of alerts. On the other hand, the alphanumeric display can display the maximum allowable number of unacknowledged alerts.

Alerts are acknowledged by selecting the ACK ALERT function on the graphic tablet or alphanumeric function key 16, whichever is more convenient. They will have an identical effect, which is to acknowledge any outstanding previously unacknowledged alert condition(s). This will result in the removal of any alert conditions listed on the "Unacknowledged Alert" line on all three screens and placement on the "Acknowledge Alert" line below. This will also silence the audible alarm. There is an audible alarm associated with every alert and there are two kinds of alarms, instant and thirty-second. The following Mesocyclone and TVS alerts are instant alerts:

VM VS FM FS

All other alerts are thirty second alerts. When an instant alert is reported to the PUP, the audible alarm will sound instantly. When a thirty second alert is reported to the PUP, the audible alarm will sound thirty seconds after it is reported. If a thirty second alert is acknowledged before the thirty seconds has elapsed, the alarm will not sound.

Once alerts are acknowledged and moved to the "Acknowledged Alert" status line, they will remain displayed until the particular alert condition(s) is no longer in effect.

Notes: Refer to the Alert Status display on the alphanumeric terminal, via the (S)TATUS,(AL)ERTS command, for an up-to-date description of all outstanding alerts. They are listed there, always in the same order as the Alert Status Lines abbreviations. See paragraph [8-3.2 Alert Status Display](#), for a description of that display.

8-3.2 Alert Status Display.

Selection:

Alphanumeric (only): (S)TATUS,(AL)ERTS

Active

Environment: Always active. If there are no alerts outstanding, a feedback message stating NO ALERTS PRESENT will be displayed in lieu of the display.

Options and

Parameters: None

Defaults: None

Operation: Refer to an example of this display, listed several pages after the Status menu, in Appendix A. This display contains descriptive information of all outstanding weather alerts at the time of its display on the alphanumeric screen. The order of the alerts listed is always the same as the order of outstanding alerts listed on the necessarily abbreviated alert status lines of all three screens (refer to paragraph [8-3.1 Alert Status Lines \(Weather Alerts\)](#)).

This display lists information about each outstanding alert in the following order:

- (1) Line #. This is used to identify alerts for possible PUP operator cancellation.
- (2) Volume scan date and time. This is the RPG volume scan date and time when the alert condition was triggered.
- (3) Alert Area number and alert group. All alerts for area 1 are listed first. Alerts are generally listed within each area with the more severe types listed prior to less severe types, rather than the order in which they were received. The alert group is used with alert category (4) to identify the type of alert.
- (4) Alert Category. The alert category is used with the alert group in (3) to identify the type of alert.
- (5) Threshold Code. This is the PUP operator selected code (from the Alert Processing Edit screen) which corresponds to a particular RPG adaptation data setting (which may vary) which determined the value that the data must have exceeded within the identified alert area causing the RPG to send the alert to the PUP (or RPG OP).
- (6) Threshold Value. This is the actual data value corresponding to the PUP operator selected threshold code in (5).
- (7) Threshold Exceeded. This is the actual data value (maximum detected in the alert area) which triggered the alert. This value does not get updated from the RPG as long as the same alert remains in effect.
- (8) and
- (9) Azimuth and Range. For grid based alerts, these identify the center location of the alert grid box which triggered the alert. For volume and forecast group alerts, the azimuth and range is generally the location of the phenomenon being reported. The exceptions are as follows: An azimuth and range of 0 and 0 are used for the VAD alert. Although reported as 0 and 0, azimuth and range are not determined for the Maximum 1 Hour Rainfall Accumulation alert. The azimuth is in degrees and the range is in nautical miles.
- (10) Storm ID. This identifies the storm as labeled on the storm ID product (and overlay) with which the alert is associated by the RPG.
- (11) Acknowledged Status. This identifies, with an "N" (for no) or a "Y" (for yes), whether the PUP operator has acknowledged the alert or not. All alerts labeled "N" will appear on the "Unacknowledged Alert Status Line" and all alerts labeled "Y" will appear on the acknowledged Alert Status Line" described in paragraph [8-3.1 Alert Status Lines \(Weather Alerts\)](#).

This display is not updated as long as it remains on the screen. To update the display, the operator should reselect it via the "S,AL" command.

All information displayed here is received from the RPG along with the alert notifications. The "User Alert Message" which is a product of the RPG provides similar information.

8-3.3 Cancel Alerts

Selection:

Alphanumeric (only): (S)TATUS,(CA)NCEL ALERT,<LINE #>
(S)TATUS,(CA)NCEL ALERT,(A)LL

Active

Environment: Active only when the Alert Status Display is displayed on the alphanumeric screen.

Options and

Parameters: <LINE #> refers to line number listed (under "#") on the Alert Status Display describing the alert to be canceled by the operator.

"ALL" indicates that all currently outstanding alerts are to be canceled by the PUP operator.

Defaults: None

Operation: When the PUP does a shutdown and a restart (or a PUPDOWN and a PUPUP) or is disconnected from the associated RPG, it automatically cancels all outstanding alerts. If there are problems in the RPG, such that outstanding alerts are not properly canceled, then these commands give the PUP operator the opportunity to do so and have them deleted from the alert status lines.

When the condition of "No Alerts" exists for a defined alert area, all outstanding alerts for that area are canceled, in any case, upon notification from the RPG.

Chapter 9

Hard Copy

The color printer (Tektronix 4693D) is available for hard copies, for any of the three screens, in color or gray scale. Only data on the selected screen at the time of selection is available for hard copy. Once the copy has been requested, and the request is acknowledged, the data on the screen may be changed. Hard copy requests may not be queued. New requests will only be available once the printer has completed. If a graphic screen is displaying a product in color scale, then the separate hard copy color scale of that product (from adaptation data) will be used for the hard copy. If the graphic screen product is in gray scale, then the gray scale for the hard copy will be derived from the screen gray scale. If the screen gray scale for a product is set in adaptation data to be an alternate color scale, rather than shades of gray, then it is recommended that hard copies not be selected unless the display is switched back to normal color scale. This is because the copy will still be in derived shades of gray from the screen gray scale.

All copies are 8 1/2 X 11 inches on either paper or transparencies. Alphanumeric screen copies are always printed in black and white.

The printer is capable of making multiple copies of the last print. This selection, as well as other options, is made via the controls on the printer itself. The SYSTEM RESET control on the printer will cancel a copy in progress (Hard Copy Stop). The printer manual should be referenced for instructions on its use.

Section 9-1: Hard Copy

Selection:

- Graphic Tablet: HARD COPY (for graphic hard copy)
- Alphanumeric: ALPHANUMERIC HARD COPY = Function Key 11 on Alphanumeric (for hard copy of the alphanumeric screen)

Active

Environment: Always active unless the color hard copy printer is busy, off-line, or disabled. Certain test patterns are the only displays which may not be selected for hard copy prints (refer to paragraph [6-13.1 Display Test Pattern](#)). Displays which are not products or background maps, e.g., the NEXRAD Unit Status Display, the Pick-A-Product Display, the Screen Color Help Screen Display, any Product Color Selection Screen, etc., may be copied. In some cases, it is the screen colors which are sent directly to the copier, rather than using a separate hard copy color table.

Options and

Parameters: Screen (left or right) for graphic hard copy
 Graphic or alphanumeric display hard copy
 Full Alphanumeric Screen Hard Copy (System Option menu) <PASSWORD>,(H)ARDCOPY,(F)ULL SCREEN
 Alphanumeric Product Data Only (no status included) (on System Option menu)<PASSWORD>,(H)ARDCOPY,(P)RODUCTS ONLY

Defaults: When the system is started, the default for alphanumeric hard copy is "Full Screen Hard Copy" which includes ALL information on an alphanumeric display including status lines.

Operation: These functions will select either of the two graphic screens or the alphanumeric screen for a copy of the current display onto the color printer. Only one copy can be made at a time and selections made while another copy is being printed will not be honored. A feedback message at the time of selection will indicate whether the request can be executed or not.

In the case of the alphanumeric display; it may be printed in its every detail or, optionally, the status lines and command and feedback lines will not be printed, leaving only the title line (on line 1) and the product/menu/list display area on lines 5 through 21 on the copy. This option is selected on the System Option Menu (paragraph [2-3.3 Menu Usage](#)).

To make a copy, the color printer must not be disabled (via paragraph [2-3.5 System Option Menu](#).) and must be powered on.

The resolution of the printer is higher than that of the displays.

The number of colors on the printer is normally the same as the number of colors on the screen. In some cases, white is converted to black, to make it easier to see on the copy. With the exception of gray scale, separate tables are provided in adaptation

data for product, map and overlay colors from the screen color tables.

Notes:

In order to enable the making of hard copies, the System Option Menu command <PASSWORD>,(H)ARDCOPY, (E)NABLE may have to be executed first. This is the case if the feedback message HARDCOPY DISABLED is reported when selecting this function. The System Option Menu command <PASSWORD>,(H)ARDCOPY, (D)ISABLE will disable the making of hard copies. The following screen manipulations are retained in the hard copy: Recenter, Magnify, Change Maps, Change Overlays, Page Attributes, Filter, Combine, Gray Scale, Product Off/On, Maps Off/On, and Overlays Off/On.

Hard Copy Stop (previously a graphic tablet function) is now performed with the SYSTEM RESET (rightmost) button on the color printer. This may be selected anytime the printer is in "Imaging" or "Printing" mode as indicated on its display. The printer display will return to "Idle" when the reset is completed.

The following screen manipulations are not reflected in the hard copy: Blink Color Level and Stop Blink.

HARD COPY may be selected during a time lapse display. If the resolution of the time lapse has been reduced, due to high speed display, it will be reduced on the copy. In this case, it is suggested that the display rate be reduced below one frame a second, prior to making a copy, to increase resolution. It is suggested that the time lapse be frozen prior to making the copy, so it is known what frame will be copied. If overlays exist and are to be included, select the product separately, rather than use a time lapse frame for hard copy, since the latter cannot contain overlays and the former could.

HARD COPY may be selected in quarter screen mode. The printer will copy all four quadrants on a single print just as they appear on the screen.

When HARD COPY is selected, it will freeze the screen for three seconds while the data is transferred to the printer. After that, however, there will be no effect on display timing from the print being made, or vice versa.

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Chapter 10

Archive

All archive functions may be selected via the alphanumeric (A)RCHIVE menu. The archive functions are used to record to optical disk and recall from optical disk: products (including annotations and attributes), received background maps, and status message data. Only one non-auto archive function may be performed at a time per archive device. Monitor performance data is recorded onto (not read from) a streamer tape rather than an optical disk.

PUP archived optical disks or RPG archived optical disks may be used at any PUP location. However, at a PUP, RPG created optical disks can only be read, not written to. If archived products are to be read in by another PUP associated with a different RPG, it is possible to archive background maps with them. The background maps must be requested from the RPG over the dial-up communications line or else read in from an optical disk in order to be able to archive them. Optionally, the other PUP may have the necessary set of maps prestored on optical disk. When reading an archive optical disk with products from another RPG, the correct set of background maps should be read off this or another optical disk before the products can be displayed with maps. Maps for the Associated RPG can be read from optical disk into the Associated background map file. Additionally, maps from up to three Non-Associated RPGs can be read from optical disk and be stored in auxiliary map files where they remain until they are replaced by retrieval of a selected map set from optical disk to a specified auxiliary map file.

The utility OPTREAD may be used to determine the products, status messages and maps that have been stored on an Archive III or Archive IV optical disk. Refer to [APPENDIX H](#), paragraph 5, for a description on the capability and use of the OPTREAD utility.

Optical disks used for Training Mode (see [Chapter 7 PUP Control/Training Mode](#)) are created using the write archive functions. If an optical disk is to be used for training, and the training is to be performed at a different PUP site than where the optical disk was made, follow the instructions in the above paragraph on using optical disks at other locations.

Section 10-1: Archive Optical Disk and Tape Usage

There are two types of archive devices associated with a PUP system; optical disk and streamer tape. The optical disk is the main archive device and is used for writing to, and retrieval from optical disk, of products, background maps (received from an RPG over a dial-up line), status messages and associated/auxiliary map sets. The streamer tape device is used only for the archive of monitor performance file data.

The following subsections describe the specifics for the two types of archive devices and the messages generated by the archive functions:

10-1.1 Optical Disk Usage (Products, Status, Background Maps).

10-1.2 Streamer Tape Usage (Monitor Performance).

10-1.3 Archive Messages.

10-1.1 Optical Disk Usage (Products, Status, Background Maps).

Optical Disk Size/Type: 5" Cartridge, write once

The limitations on products, maps, and status files are independent of each other and exist because of index sizes, not the amount of data that can fit on a disk.

Enable/
Disable

Writing: The write enable mechanism must be slid to the write-enable position on the disk cartridge if data is to be archived onto the disk. This is not necessary for reading data from the disk. Disks must be pre-formatted at a central NEXRAD location or on a PUP or RPG before they are able to be used by a PUP or RPG.

Optical Disk Load:

1. Insert optical disk into the drive slot.
2. Lock disk in drive by turning handle, located below the drive opening, clockwise 1/4 turn.
3. Press the button on the drive located below the drive opening. When the light on the button stops blinking, the disk is ready for use.

Optical Disk Unload:

1. Press the button on the drive, located below the drive opening.
2. When the light on the button goes out, unlock the disk by turning the handle on the disk drive counterclockwise 1/4 turn.
3. Remove the optical disk.

Optical Disk Capacity: One side of an optical disk will hold a maximum of 100,000 products and status message sets (where one set has a maximum of 48 messages), and 250 sets of background maps (each set with up to the maximum number of maps available from an RPG).

10-1.2 Streamer Tape Usage (Monitor Performance).

Tape Size: Cartridge approximately 4" x 6" x 3/4"

Enable/

Disable**Tape**

Writing: The write enable screw is located on the top of the streamer tape. When the arrow on the write enable screw is pointing away from the word SAFE on the cartridge, data may be written to the tape. To "write protect" the tape (disable writing), the screw is turned so that the arrow on the screw points to the word SAFE, located on the top of the cartridge. In this case, the tab hole next to the screw on the front of the tape has an opening positioned there.

Tape Load:

1. Insert streamer tape into drive.
2. Lock tape in place by turning handle, located below drive opening, counterclockwise 1/4 turn.

Tape Rewind: Streamer tapes are automatically rewound upon loading.

Tape Unload:

1. Unlock tape by turning handle on tape drive 1/4 turn clockwise.
2. Remove streamer tape.

Tape

Positioning: Not applicable.

10-1.3 Archive Messages.

These messages appear on the alphanumeric feedback line and some on the system status lines during archive operations. The latter are also filed in the system status file. Those which appear on the system status line and file are messages which may appear long after the operator has requested an archive function. The feedback-only messages appear immediately after the operator request. [Table 10-1: Archive Function Messages](#) describes the meaning of the various archive function messages. The system status messages are also described in paragraph [8-2.9.1 System Status Lines Contents Explanation.](#)

Section 10-2: Archive Functions

All archive functions, except for Automatic Archive of Background Map Files, may be selected from the alphanumeric (A)RCHIVE menu. The following subsections (with the exception of paragraph [10-2.19 Automatic Archive of Background Map Files](#).) describe the archive functions which may be selected by the operator:

10-2.1 Archive PUP Product Data Base Capacity.

10-2.2 Archive Products by Time Span.

10-2.3 Archive a Single Product.

10-2.4 Continuous Archiving of Products/Maps (Auto Archive).

10-2.5 Archive Received Background Maps.

10-2.6 Continuous Archive of Status Messages (Auto-Archive).

10-2.7 Archive Monitor Performance File.

10-2.8 Resume Archive.

10-2.9 Cancel Archive Function.

10-2.10 Read PUP Product Data Base Capacity.

10-2.11 Read Archived Products by Time Span.

10-2.12 Read One Archived Product.

10-2.13 Read Archived Received Background Maps.

10-2.14 Read Status Index and Messages.

10-2.15 Select Archive Device.

10-2.16 Pause Auto Archive.

10-2.17 Read Background Map File.

10-2.18 Archive Background Map File.

10-2.19 Automatic Archive of Background Map Files.

Table 10-1: Archive Function Messages

MESSAGE TYPE		MESSAGE/DESCRIPTION
STATUS	FEEDBACK	
X	X	<u>ARCHIVE DEVICES UNAVAILABLE</u> - Indicates that a read or write archive request was made and there are no archive devices set up in the Hardware Implementation Adaptation Data Category #9.
	X	<u>ARCHIVE IV CANNOT WRITE TO ARCHIVE III CREATED DISK</u> - Indicates a write was attempted to an optical disk that was created at an RPG.
	X	<u>ARCHIVE IV DOESN'T READ ARCHIVE III STATUS. ARCHIVE COMPLETE</u> - Indicates an attempt was made to read the status file and the optical disk was created on an RPG.
	X	<u>ARCHIVE PAUSED SELECTION UNAVAILABLE</u> - Indicates archive functions are paused and no operator selection can be processed on the current drive.
X	X	<u>ARCHIVE TAPE WRITE DONE</u> - Indicates Monitor Performance data was successfully written to tape.
X	X	<u>ARCHIVE UNIT x ASSIGN ERR</u> - Indicates that an attempt was made to access a file that was not assigned to a logical unit.
X	X	<u>ARCHIVE UNIT x AUTO ARCH CNCLD</u> - Indicates that the Auto Archive Function has successfully been canceled.
	X	<u>ARCHIVE UNIT x AUTO ARCHIVE ACTIVE</u> - Indicates that the operator requested another archive function while auto archive was active.
X	X	<u>ARCHIVE UNIT x END OF DISK</u> - Indicates training mode is active and all of the products on the optical disk have been read. To continue reading products, the operator should place a new optical disk in the drive and select the training mode resume function.
X	X	<u>ARCHIVE UNIT x ERROR xxxx</u> - Indicates on optical disk error, other than those defined, is detected. These errors should not occur in the operational PUP. If they do, they should be reported, including the xxxx error code, to a software technician. Error codes 32 and 34 are often indicative of an uninitialized disk. For initialization procedure, refer to NWS EMB No. 6-530, Section 4-4.6, Optical Disk Initialization Procedure.
X		<u>ARCH UNIT x EXCDS UTIL THRES</u> - Indicates the optical disk in the current archive unit exceeds the percent utilization threshold limit in the adaptation data (Category 24, Overload Warning, Thresholds, halfword 5). The message will only be re-displayed when the utilization of the particular unit later goes below the threshold and then exceeds the threshold again.
X	X	<u>ARCHIVE UNIT x FULL</u> - Indicates that no more data can be written to the optical disk. The resume function should be used to continue after another optical disk is loaded.
X	X	<u>ARCHIVE UNIT x ILLEGAL LU</u> - Indicates that an illegal logic unit has been assigned or not assigned properly to the optical disk.
	X	<u>ARCHIVE UNIT x MAPS NOT FOUND</u> - Indicates that there are no background maps on the optical disk which match the inputs requested by the operator.
	X	<u>ARCHIVE UNIT x NOT ACTIVE</u> - Indicates that a cancel request cannot be processed because there is currently no archive function active to cancel.

Table 10-1: Archive Function Messages

MESSAGE TYPE		MESSAGE/DESCRIPTION
STATUS	FEEDBACK	
X	X	<u>ARCHIVE UNIT x PRODUCTS NOT FOUND</u> - Indicates that there are no products on the optical disk which match the inputs requested by the operator.
	X	<u>ARCHIVE UNIT x READ ALREADY ACTIVE</u> - Indicates that the operator requested another archive function while a archive request is active.
	X	<u>ARCHIVE UNIT x READ CANCELLED</u> - Indicates that an archive read request has successfully been canceled.
	X	<u>ARCHIVE UNIT x READ DONE</u> - Indicates that an archive read has successfully been completed.
X	X	<u>ARCHIVE UNIT x RECOVERY ACTIVE</u> - Indicates that the operator requested another archive function while an archive recovery request is active.
	X	<u>ARCHIVE UNIT x RECVRY DONE</u> - Indicates that an archive recovery has successfully been completed.
	X	<u>ARCHIVE UNIT x STATUS ARCHIVE CNCLD</u> - Indicates status automatic archive function is canceled.
	X	<u>ARCHIVE UNIT x UNABLE TO RESUME</u> - Indicates that a resume request cannot be processed because the last archive function did not end with the archive unit x full message or was not the read data base function.
X	X	<u>ARCHIVE UNIT x UNABLE TO RESUME TRAINING MODE</u> - Indicates that training mode cannot be resumed. Training mode can only be resumed if the end of disk has been detected and training mode is active.
	X	<u>ARCHIVE UNIT x UNAVAILABLE</u> - Indicates that the archive unit x is off-line, an optical disk is not in the drive, the optical disk is write protected, or this archive device is not set up in the Hardware Implementation Adaptation Data Category #9.
	X	<u>ARCHIVE UNIT x UNMOUNTABLE</u> - Indicates that an error has occurred in mounting the optical disk.
	X	<u>ARCHIVE UNIT x UNRECOV ERR</u> - Indicates that an archive unit hardware input/output unrecoverable error has occurred. Hardware maintenance should be contacted if this condition does not correct itself.
X	X	<u>ARCHIVE UNIT x WRITE ALREADY ACTIVE</u> - Indicates that the operator requested archive function while an archive write function is active.
	X	<u>ARCHIVE UNIT x WRITE ALREADY ACTIVE</u> - Indicates that the operator requested archive function while an archive write function request is active.
	X	<u>ARCHIVE UNIT x WRITE CANCELLED</u> - Indicates that an archive write request has successfully been canceled.
	X	<u>ARCHIVE UNIT x WRITE DONE</u> - Indicates that an archive write has successfully been completed.
	X	<u>ARCHIVE UNIT X EXCEEDS UTIL THRES</u> - Indicates the optical disk in the current archive unit exceeds the utilization threshold limit.
	X	<u>AUTO ARCHIVE ALREADY ACTIVE OTHER UNIT</u> - Indicates automatic archive cannot be selected on the current drive because it is already active on other drive.
	X	<u>AUTO ARCHIVE NOT ACTIVE ON DRIVE</u> - Indicates automatic archive is not active on the current drive.

Table 10-1: Archive Function Messages

MESSAGE TYPE		MESSAGE/DESCRIPTION
STATUS	FEEDBACK	
	X	<u>AUTO ARCHIVE PAUSE PENDING</u> - Indicates archive function is active when pause is requested and the pause is pending completion of the current function.
X	X	<u>AUTO ARCHIVE PAUSED & STATUS AUTO ARCHIVE PAUSED</u> -Indicates the archive function is paused and no other request will be processed until the function is resumed or canceled.
X	X	<u>AUTO ARCHIVE RESUMED</u> - Indicates automatic archive function is resumed on the current drive.
X	X	<u>AUTO ARCHIVE STARTED</u> - Indicates request to automatically archive products/ maps has been processed and automatic archive is active.
	X	<u>AUTO ARCHIVE UNIT X NOT ACTIVE</u> - Indicates automatic archive is not active on the current archive unit.
X	X	<u>END OF TAPE, ARCHIVE DONE</u> - Indicates that the physical end of a monitor performance tape has been reached and no more data can be written to the tape.
	X	<u>INVALID OPTICAL DISK HEADER ON ARCHIVE UNIT x</u> -Indicates that the header record on the optical disk was not created by a NEXRAD PUP or RPG.
X	X	<u>MAP SET ARCHIVE IN PROGRESS</u> - Indicates automatic archive of map sets is active.
X	X	<u>MAP SET WRITE DONE</u> - Indicates completion of requested write of a map set.
	X	<u>MAPS NOT AVAILABLE FOR ARCHIVE UNIT x</u> - Indicates that there were no maps matching the operator request in the data base.
	X	<u>MISSING DIRECTORY FILES -- ATTEMPTING RECOVERY...</u> -Indicates the software has detected a corrupted optical disk and that it is attempting to recover the corrupted file(s). Should recovery be successful, the requested archive function will complete normally. However, an archive error message at the applications terminal most likely indicates the recovery was unsuccessful. In this case, the optical disk should be sent to the OSF for recovery.
	X	<u>MISSING INDEX FILES -- ATTEMPTING RECOVERY...</u> -Indicates the software has detected a corrupted optical disk and that it is attempting to recover the corrupted file(s). Should recovery be successful, the requested archive function will complete normally. However, an archive error message at the applications terminal most likely indicates the recovery was unsuccessful. In this case, the optical disk should be sent to the OSF for recovery
	X	<u>**MISSING FILES**, EXECUTING ARCHIVE COMMAND</u> -Indicates the software has detected a corrupted optical disk and that it cannot perform recovery operations because the disk has its write-enable switch on the write-protect setting. The requested archive function will be attempted but may or may not be successful due to the corruption. If the requested archive function does not complete as expected, it is recommended that the write-protection be removed and the archive command be re-issued.
	X	<u>MONITOR PERFORMANCE DATA UNAVAILABLE</u> - Indicates there is no performance monitor data to archive at this time. Performance monitor may not be on or finished its first period yet.
	X	<u>NO DATA AVAILABLE ON ARCHIVE UNIT x</u> - Indicates that there is no data on the optical disk.

Table 10-1: Archive Function Messages

	X	<u>ONLY VALID FOR PUP OPTICAL DISK</u> - Indicates current optical disk is not a PUP created disk and the selected write request cannot be processed.
	X	<u>PAUSE ALREADY SELECTED</u> - Indicates archive function is already paused due to selection of pause command or paused due to process of simultaneous command.
	X	<u>PRODUCT(S) NOT AVAILABLE FOR ARCHIVE UNIT x</u> - Indicates that there was no product(s) matching the operator request in the data base.
	X	<u>STATUS ARCHIVE UNIT X NOT ACTIVE</u> - Indicates automatic archive of status messages is not active on the current archive unit.
	X	<u>STATUS AUTO ARCHIVE PAUSE PENDING</u> - Indicates archive function is active, including status automatic archive, when pause is requested and the pause is pending completion of the current function.
X	X	<u>STATUS AUTO ARCHIVE RESUMED</u> - Indicates status automatic archive is resumed on the current drive.
	X	<u>STATUS AUTO ARCHIVE ALREADY ACTIVE</u> - Indicates STATUS archive function is active.
	X	<u>STATUS AUTO ARCHIVE NOT ACTIVE</u> - Indicates automatic archive of status messages is not active and the received status auto archive request cannot be processed.
X	X	<u>STATUS AUTO ARCHIVE STARTED</u> - Indicates request to automatically archive status messages has been processed and status automatic archive is active.
X	X	<u>STATUS INDEX NOT FOUND</u> - Indicates status index identified in received control packet is not found in PMASTER file.
X	X	<u>STATUS MESSAGES NOT FOUND</u> - Indicates there are no status messages associated with the indices on optical disk.
X	X	<u>TAPE UNIT ILLEGAL LU ERR</u> - Indicates that an illegal logic unit has been assigned or not assigned properly to the optical disk.
X	X	<u>TAPE UNIT PARITY ERR</u> - Indicates that the data on the streamer tape is unreadable by the archive function.
X	X	<u>TAPE UNIT UNAVAILABLE ERROR</u> - Indicates streamer tape unit is off-line, streamer tape is not active in the drive, streamer tape is write protected, or this device is not set up in the Hardware Implementation Adaptation Data Category #9.
X	X	<u>TAPE UNIT UNDEFINED ERROR XXXX</u> - Indicates on streamer tape an error, other than those defined, is detected. These errors should not occur in the operational PUP. If they do, they should be reported, including the XXXX error code, to a software technician.
X	X	<u>TAPE UNIT UNRECOV ERR</u> - Indicates that an archive unit hardware input/output unrecoverable error has occurred. Hardware maintenance should be contacted if this condition does not correct itself.
X	X	<u>WAIT FOR COMPLETION OF CMD</u> - Indicates automatic archive of the map sets is in progress and no other request can be processed until the map set write completed.

10-2.1 Archive PUP Product Data Base Capacity.

Selection:

Alphanumeric (only): (A)RCHIVE,(A)PPEND,(D)ATABASE

-or-

A; (this function appears first on the Archive menu, therefore it is the default.)

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and

Parameters: Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)).

Defaults: The semicolon(;) may be placed after (A)RCHIVE or (A)PPEND to select this function.

Operation: This will archive the entire contents of the PUP product data base to optical disk, appending to the end of whatever other data may be on the Optical disk.

This is the easiest archive command to use and should be used for archiving, except in those cases where a more limited amount of data is to be archived.

This command will not archive background maps which must be archived separately.

Notes: This command will always archive the entire product data base regardless of whether some portion of it was already archived.

For successful completion of this function, the following must be true:

- An optical disk is in the selected optical disk device.
- The write enable mechanism on the optical disk cartridge is in the enable position.
- The selected optical disk device is on-line.

When this function has successfully completed, the following message will be displayed on the system status lines and the alphanumeric feedback line: ARCHIVE UNIT x WRITE DONE where x is the archive device number.

The status of this function can be checked by using the status of archive command (see [Section 8-1.8 Status of Archive.](#)).**10-2.2 Archive Products by Time Span.**

Selection:

Alphanumeric (only): (A)RCHIVE,(A)PPEND,(P)ROD-
UCTS,<start-time>,<start-date>,<end-time>,<end-date>

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and

Parameters: Start time, start date, end time, end date
Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)).

Defaults: The semicolon (;) may be placed anywhere a comma (,) appears in the alphanumeric command line after (P)RODUCTS. If a semicolon is placed in the command line, the remaining parameters will be defaulted with the following values:

Start time - 00:00
Start date - 01/01/70
End time - present time
End date - present date

Operation: The Archive Products by Time Span function will record to an optical disk all products in the PUP data base whose generation time falls inclusively between the start time, start date and the end time, end date. Archive of these products will begin at the current end of data position on the optical disk. The user may archive many time/date spans of products on a single optical disk (as well as other archiveable data).

Notes: Another way to archive the entire data base is to let all optional parameters in this alphanumeric command default (enter A,A,P;). To archive all products generated at a single time and date, enter that same time and date for both start time and end time and start date and end date.

For successful completion of this function, the following must be true:

- An optical disk is in the selected optical disk device.
- The write enable mechanism on the optical disk cartridge is in the enable position.
- The selected optical disk device is on-line.

When this function has successfully completed, the following message will be displayed on the system status lines and the alphanumeric feedback line: ARCHIVE UNIT x WRITE DONE where x is the archive device number.

The status of this function can be checked by using the status of archive command (see paragraph [8-1.8 Status of Archive.](#)). Products written to optical disk using the Archive Products by Time Span function can be retrieved from optical disk using the Read Archive Products by Time Span (paragraph [10-2.11 Read Archived Products by Time Span.](#)), the Read One Archived Product (paragraph [10-2.12 Read One Archived Product.](#)), and the Read PUP Product Database Capacity (paragraph [10-2.10 Read PUP Product Data Base Capacity.](#)) functions.

Following write operations to optical disk, such as this, additional writes can be made as long as the optical disk is not removed from the drive.

10-2.3 Archive a Single Product.

Selection:

Alphanumeric (only): (A)RCHIVE,(A)PPEND,(O)NE PRODUCT,
<PROD-NAME> (Use of this command will take the user to an edit screen.)

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and Parameters: PROD-NAME (Note: If the product name is left out of the command line, a list of product names will appear on the screen for selection.)
Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device](#)).

Defaults: None

Operation: The Archive a Single Product function will record to optical disk one product, selected by the user, from the PUP data base. Once the command has been entered, and Return depressed, the Archive One Product Edit Screen will appear to select product parameters. Archiving of this product will begin at the current end of data position on the optical disk. This will allow the user to archive many products, one at a time (with this function), on a single disk.

For successful completion of this function, the following must be true:

- An optical disk is in the selected optical disk device.
- The write enable mechanism on the optical disk cartridge is in the enable position.
- The selected optical disk device is on-line.

When this function has successfully completed, the following message will be displayed on the system status lines and the alphanumeric feedback line: ARCHIVE UNIT x WRITE DONE where x is the archive device number.

Notes: The status of this function can be checked by using the status of archive command (see paragraph [8-1.8 Status of Archive](#)).

Products written to optical disk using the Archive a Single Product function can be retrieved from optical disk using the Read Archived Products by Time Span (paragraph [10-2.11 Read Archived Products by Time Span](#)), the Read One Archived Product (paragraph [10-2.12 Read One Archived Product](#)) and the Read PUP Product Database Capacity (paragraph [10-2.10 Read PUP Product Data Base Capacity](#)) functions.

10-2.4 Continuous Archiving of Products/Maps (Auto Archive).

Selection:

Alphanumeric (only): (A)RCHIVE,(A)PPEND,(A)UTO ARCHIVE,
(I)NCLUDE ONE TIME PRODUCTS, (I)NC BKND MAPS
-or-
(A)RCHIVE,(A)PPEND,(A)UTO ARCHIVE,
(I)NCLUDE ONE TIME PRODUCTS, (N)O BKND MAPS
-or-
(A)RCHIVE, (A)PPEND, (A)UTO ARCHIVE, (N)O ONE TIME PRODUCTS

Active

Environment: Always active except when archive is paused or when auto archive is selected on the

other archive device.

Options and

Parameters: "Include one-time products" or "No one-time products".
"Include background maps" or "No background maps".
Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)).

Defaults: The default option is to include one-time products.

Operation: The Continuous Archiving function affords the user the ability to archive products and received background maps automatically as they arrive from the RPG (or all RPGs if one-time requests are included). The right-most parameter on the Routine Product Set Edit Screen list is the auto archive parameter. If this parameter is specified as "Yes", then when that product is received from the RPG, it will be automatically archived if the Auto Archive function has also been selected. The "Include one-time products" option will cause one-time requested products to be automatically archived when they are received from an RPG if the Auto Archive function has also been selected with the one-time product option. The "Include background maps" option will cause received background maps associated with a one-time product request to be automatically archived when they are received from an RPG, if the Auto Archive function has been selected with the include map option. If this option is not selected, received background maps are not automatically archived. Archiving of these products will begin at the current end of data position on the optical disk. To cancel this function, the user must use the Archive Cancel function (see paragraph [10-2.9 Cancel Archive Function.](#)). This will end the continuous archive function and products on the Routine Product Set List designated for automatic archiving will not be automatically archived. Also, products that were previously received and queued for archiving will not be archived.

Notes: For successful operation of this function the following must be true:

- An optical disk is in the selected optical disk device.
- The write enable mechanism on the optical disk cartridge is in the enable position.
- The selected optical disk device is on-line.

Entering PUPDOWN while Auto-Archive is still active, results in the following message "***CANCEL ARCHIVE BEFORE BRINGING PUP DOWN***". Cancel Auto-Archive via the [A,C,A] at the alphanumeric terminal, then enter PUPDOWN for all PUP operations to be brought down as normal.

Products written to optical disk using the Continuous Archiving function can be retrieved from disk using paragraph [10-2.11 Read Archived Products by Time Span.](#), [10-2.12 Read One Archived Product.](#) and [10-2.10 Read PUP Product Data Base Capacity.](#) functions. Maps written to optical disk using the Continuous Archiving function can be retrieved from disk using paragraph [10-2.13 Read Archived Received Background Maps.](#)

Other archive functions are possible on the same optical disk archive device when this function is active.

10-2.5 Archive Received Background Maps.

Selection:

Alphanumeric (only): (A)RCHIVE,(A)PPEND,(R)ECEIVED BACKGROUND MAPS, <rpg>

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and

Parameters: RPG ID mnemonic (4 characters)
Archive device number (selected prior to this function, see [10-2.15 Select Archive Device.](#)).

Defaults: All received background maps from all RPGs when semicolon is entered in lieu of <rpg>.

Operation: The Archive Received Background Maps function will record to an optical disk the latest received or read in set of background maps in the PUP product data base that are for the selected RPG. The RPG determines the NEXRAD unit geographic coverage area for the maps. Archiving of these maps will begin at the end of data location on the optical disk.

Notes: For successful completion of this function, the following must be true:

- An optical disk is in the selected optical disk device.
- The write enable mechanism on the optical disk cartridge is in the enable position.
- The selected optical disk device is on-line.

Background maps from any RPG specified, including the associated RPG, must have been previously requested over the dial-up communications line or read in from another archive disk. Archiving of associated RPG background maps is useful for training disks to be used at other PUP sites. Archiving of other RPG background maps is most useful as a convenient source for loading those maps so they need not be frequently requested from that RPG, if products are to be obtained from there.

When this function has successfully completed, the following message will be displayed on the system status and alphanumeric feedback lines: ARCHIVE UNIT x WRITE DONE where x is the archive device number.

Background maps written to optical disk using the Archive Background Maps function can be retrieved from optical disk using the Read Archived Background Maps function (see paragraph [10-2.13 Read Archived Received Background Maps.](#)).

10-2.6 Continuous Archive of Status Messages (Auto-Archive).

Selection:

Alphanumeric (only): (A)RCHIVE,(A)PPEND,(A)UTO ARCHIVE, (S)TATUS
MESSAGES

Active

Environment: Always active except when the mounted optical disk is an RPG created disk or was

created at another PUP. The function is only active on one disk at a time.

Options and

Parameters: Archive device number (selected before this function, see paragraph [10-2.15 Select Archive Device.](#)).

Defaults: None

Operation: The Continuous Archive Status Message function will record to an optical disk the current system status messages. The status messages are contained in the status file which can be viewed with the (S)TATUS,(S)YSTEM command. The current system status file will not be altered in any way by this function. Only a copy of the status file will be made and portions of the file recorded to optical disk. Writing to the optical disk will begin at the current end-of-data position on the optical disk. This allows the user to perform multiple archive functions on one disk.

Archive of status messages is prohibited if the optical disk was created at another PUP or at an RPG site (as indicated by the optical disk header data). In this case the message "ONLY VALID FOR PUP OPTICAL DISK" is displayed on the feedback line.

Notes: For successful completion of this function, the following must be true:

- An optical disk is in the selected optical disk device.
- The write enable mechanism on the optical disk cartridge is in the enable position.
- The selected optical disk device is on-line.

Status messages written to optical disk using the Continuous Status Archiving function can be retrieved using the Read Status Index (see paragraph [10-2.14 Read Status Index and Messages.](#)) function, then by selection to display status messages associated with a particular indices value.

Automatic Archiving of status messages occurs when 48 messages have been received since the previous write of messages to optical disk, or when 30 minutes expires since the previous write of messages. Cancellation of the Status Auto Archive function also initiates writing of the remaining status messages.

Other archive functions are possible on the same optical disk archive device when this function is active.

10-2.7 Archive Monitor Performance File.

Selection:

Alphanumeric (only): (A)RCHIVE,(M)ONITOR PERFORMANCE

Active

Environment: Always active except when another non-auto archive function is active.

Options and

Parameters: None

Defaults: None

Operation: The Archive Monitor Performance File function will record to a streamer tape the entire monitor performance file that has been written so far. Once monitor performance is turned on (see paragraph [Section 7-9: Monitor Performance Begin and End Monitoring](#)), each monitor performance period data is written to the monitor performance file on disk, e.g., if three periods have elapsed since monitor performance was turned on, three periods of data will be archived if this function is selected. Monitor performance data is archived so that it can be analyzed at the Operational Support Facility (OSF). The OSF has the ability to generate several different kinds of reports which aid in the analysis of the monitor performance data. Archiving of this data will always start at the beginning of the tape.

Notes: For successful completion of this function, the following must be true:

- A tape is in the streamer drive.
- The write enable screw, located on the top of the tape, is not in the safe position.

When this function has successfully completed, the following message will be displayed on the system status and alphanumeric feedback lines: ARCHIVE TAPE WRITE DONE.

There is no archive function to read the monitor performance data from tape at the PUP. All reading of this data is done at the OSF.

10-2.8 Resume Archive.

Selection:

Alphanumeric (only): (A)RCHIVE,(RES)UME

Active

Environment: Active when an optical disk has reached its logical or physical end, i.e., END OF DISK displayed on the feedback line during another archive function. Also, active when a Read PUP Product Data base Capacity command has completed execution. Also active when auto archive function(s) are paused due to previous selection of the pause auto archive function.

Options and

Parameters: Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)).

Defaults: None

Operation: The Resume Archive function will enable the user to continue the last auto archive or read data base function for the selected archive device when the optical disk has reached its logical or physical end, and a new optical disk has been mounted, or when the operator previously paused the auto archive function. This end may not be the physical end, but where a read function encountered the end of data, prior to successful completion. The user will know when the optical disk has reached its end because the following message will be displayed on the system status and alphanumeric feedback lines: ARCHIVE UNIT x END OF DISK where x is the archive device number.

The alphanumeric terminal will also beep at this time. To continue the previous archive function, the user should load another optical disk if the logical or physical end of disk was reached. The Resume Archive function can then be selected. This is normally used for an incomplete read function or an auto archive write function which

physically fills an optical disk and is to be resumed on another optical disk. The Resume Function is also used following the (A)RCHIVE,(R)EAD,(D)ATABASE command (which starts at the beginning of the disk) to read subsequent product data bases full of products off the optical disk. A commanded archive pause can only be resumed by selection of the Archive resume request.

10-2.9 Cancel Archive Function.

Selection:

Alphanumeric (only): (A)RCHIVE,(C)ANCEL,(A)LL
-or-
(A)RCHIVE,(C)ANCEL,(P)ROD & MAP AUTO ARCHIVE
-or-
(A)RCHIVE,(C)ANCEL,(S)TATUS MSG AUTO ARCHIVE

Active

Environment: Active only if the specified archive function is currently active on the same archive device.

Options and

Parameters: Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)).

Defaults: None

Operation: The Cancel Archive function will cancel any currently active archive function for the selected device only. If no archive function is currently active on the selected device, the following message will be displayed on the alphanumeric feedback line: ARCHIVE UNIT x NOT ACTIVE, where x is the archive device number.

If the cancellation was successful, the following message will be displayed on the alphanumeric feedback line: ARCHIVE UNIT x READ CANCELLED, where x is the archive device number.

10-2.10 Read PUP Product Data Base Capacity.

Selection:

Alphanumeric (only): (A)RCHIVE,(R)EAD,(D)ATABASE

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and

Parameters: Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)).

Defaults: None

Operation: This will read in a PUP product data base capacity of products, one at a time, from an archived optical disk. Execution of this command will always start with the most recently archived set of products on the optical disk. To read successive data base capacities (archived earlier) off of disk, the (A)RCHIVE,(RES)UME command should be used as many times as desired, following the initial execution of this command.

This command (and successive "RESUMES") will read products in the reverse order in which they were stored on the disk without skipping any, and without regard for any product parameters, including the RPG at which they originated or the PUP or RPG at which they were archived.

Assuming there are enough products on the optical disk, this will completely replace the current PUP product data base, i.e., the current data base will be lost unless it was previously archived.

10-2.11 Read Archived Products by Time Span.

Selection:

Alphanumeric (only): (A)RCHIVE,(R)EAD,(P)RODUCTS,<start-time>,
<start-date>,<end-time>,<end-date>

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and Parameters: Archive device number (selected prior to this function.
see Section 10.2.15).
Start time, start date, end time, end date

Defaults: The semicolon (;) may be placed anywhere a comma (,) appears after the word (P)RODUCTS in the command line. If a semicolon is placed at the end of the partial command, the remaining parameters that would be entered to the right of the semicolon will be defaulted with the following values:

Start time - 00:00
Start date - 01/01/70
End time - present time
End date - present date

Operation: The Read Archived Products by Time Span will read, from an optical disk, all products on the optical disk that fall inclusively between the start time, start date, and the end time, end date parameters. This function will automatically start at the beginning of the disk in making its search. The function will then read until it finds the end of valid data on the optical disk. At this time, the following message will be displayed on the system status and alphanumeric feedback lines: ARCHIVE UNIT x READ COMPLETE. If no valid product data is found, prior to reaching the end of valid data marker on the optical disk, the following message is displayed: ARCHIVE UNIT x PRODUCTS NOT FOUND where x is the archive device number.

Notes: To read all products generated at a single time and date, enter the same time and date for both start time and end time and start date and end date.

For successful completion of this function, the following must be true:

- An optical disk is in the selected optical disk device.
- The selected optical disk device is on-line.

The status of this function can be checked by using the status of archive command

(see paragraph [8-1.8 Status of Archive.](#)).

Products are written to optical disk using the Archive PUP Database Capacity, Archive Products by Time Span, Archive a Single Product, and Continuous Archiving functions (see Sections 10.2.1 - 10.2.4 for information on writing products to optical disk). The Read Products by Time Span function can read products placed on optical disk by any of the above functions.

10-2.12 Read One Archived Product.

Selection:

Alphanumeric (only): (A)RCHIVE,(R)EAD,(O)NE PRODUCT, <PROD-NAME> (An edit screen is entered at this point to specify product parameters.)

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and Parameters: Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)). PROD-NAME (mnemonic) (Note: If the product name is left out of the command line, or an error occurs in entry, a list of product names will appear on the screen.)

Defaults: None

Operation: The Read One Archived Product function will read from an optical disk one product, selected by the user. This function will automatically search the entire disk for the product. The function will search until it finds the product or reaches the end of valid data on the optical disk. When this function has successfully located the product for which it is searching, the following message will be on the system status and alphanumeric feedback lines: ARCHIVE UNIT x READ DONE, where x is the archive device number.

If the end of data is reached prior to finding the product, the following message will be displayed on the alphanumeric feedback line: ARCHIVE UNIT x PRODUCTS NOT FOUND.

If this message is displayed, and the product that is being searched for is not on the optical disk, then a new disk could be mounted and the Resume function selected to continue with the search. (See paragraph [10-2.8 Resume Archive.](#) for Resume function.)

The status of this function can be checked by using the status of archive command (see paragraph [8-1.8 Status of Archive.](#)).

Products are written to optical disk using the Archive Products by PUP Data Base Capacity, by Time Span, Archive a Single Product, and Continuous Archiving function (see Sections 10.2.1 - 10.2.4 for information on writing products to optical disk). The Read One Archived Product function can read a product placed on optical disk by any of the above functions.

10-2.13 Read Archived Received Background Maps.

Selection:

Alphanumeric (only): (A)RCHIVE,(R)EAD,(R)ECEIVED BACKGROUND MAPS, <rpg>

Active

Environment: Always active except when another archive function is active on the same archive device.

Options and Parameters: Archive device number (selected prior to this function, see paragraph 10-2.15 [Select Archive Device.](#)). RPG ID mnemonic

Defaults: If the RPG is left out (semicolon entered instead), the default is to read all background maps from all RPGs on the optical disk.

Operation: This function will read from an optical disk all background maps that are from the selected RPG. This function will automatically search the entire optical disk for the last set of archived background maps from the selected RPG. The following message will be displayed on the system status and alphanumeric feedback lines if the requested maps were read: ARCHIVE UNIT x READ DONE. The following message will be displayed if the requested maps were not found: ARCHIVE UNIT x MAPS NOT FOUND, where x is the archive device number.

Notes: If more maps from another disk are to be read, the new disk must be mounted and the Resume function selected (see paragraph 10-2.8 [Resume Archive.](#)). If no more maps are to be read, and the Resume function is not selected, the function is considered to be complete and another archive function may be selected.

For successful completion of this function, the following must be true:

- An optical disk is in the selected optical disk device.
- The selected optical disk device is on-line.

The status of this function can be checked by using the status of archive command (see paragraph 8-1.8 [Status of Archive.](#)).Background maps are written to optical disk using the Archive Received Background Maps function (see paragraph 10-2.5 [Archive Received Background Maps.](#)).**10-2.14 Read Status Index and Messages.**

Selection:

Alphanumeric (only): (A)RCHIVE,(R)EAD,(S)TATUS INDEX,
<start-time>,<start-date>

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and Parameters: Archive device number (selected prior to this function, see paragraph 10-2.5 [Archive Received Background Maps.](#)).
Start time, start date.
Start block index number (entered after the Archive Status Index appears)

Defaults: If the start time and date are left out (semicolon entered instead), the default is to read the earliest archived status messages indices. The semicolon (;) may be placed anywhere a comma (,) appears in the alphanumeric command line after (S)TATUS INDEX. If a semicolon is placed in the command line, the remaining parameters will be defaulted with the following values:

Start time - 00:00
Start date - 01/01/70

Operation: The Read Status Index and Messages function will read from an optical disk the archive status index and initiate the reading of archived status messages. The message "STATUS INDEX NOT FOUND" is displayed on the feedback and system status lines if no status indices are found on the optical disk for the requested time span.

When the Archive Status Index appears after 10 to 70 seconds, the operator is able to select up to 10 blocks of archived status messages for display by entering the start block number (1-32).

The archived status messages will appear after 10 to 70 seconds. The messages may be paged absolutely (P,10) or relatively (F6,F7). The message "STATUS MESSAGES NOT FOUND" is displayed on the feedback and system status lines if no status messages are found on the optical disk associated with the specified block number. The status index can be redisplayed by selecting F2. When the status index is redisplayed via F2, the optical disk is not interrogated since the archive status index is retained until the function is terminated.

The "ARCHIVE UNIT X READ DONE" message is displayed on the feedback and system status lines when retrieval of the status indexes and status messages from the optical disk is completed. Selection of F1 or F2 when the status message indexes are displayed terminates the function. Also, selection of F1 when the status messages are displayed terminates the function.

Notes: For successful completion of this function, the following must be true:

- An optical disk is in the selected optical disk device.
- The selected optical disk device is on-line.

The status of this function can be checked by using the status of archive command (see paragraph [8-1.8 Status of Archive.](#)).

10-2.15 Select Archive Device.

Selection:

Alphanumeric (only): (A)RCHIVE, (S)ELECT, <DEVICE-NUMBER>

Active

Environment: Always active.

Options and

Parameters: DEVICE-NUMBER (1 or 2, depending upon the setting in adaptation data, category #9)

- Defaults:** Device number 1 when the software is first loaded, after that it is the last selected value.
- Operation:** The Select Archive Device function is used to select the archive device for which all subsequent archive functions apply (except the Archive Monitor Performance File function). It is not necessary to select this prior to each archive function; once selected, it stays in effect until it is changed. The Hardware Implementation Category in Protected Adaptation data indicates the number of archive devices available, 1, 2, or none. For those PUPs configured with two archive devices, it is possible to execute any two valid archive functions simultaneously.

10-2.16 Pause Auto Archive.

Selection:

Alphanumeric (only): (A)RCHIVE, (P)AUSE AUTO ARCHIVE

Active

Environment: Active when an auto archive function is active.

Options and

Parameters: Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)).

Defaults: None

Operation: The Pause Auto Archive function is used to temporarily suspend any active auto archive function(s). The operator is given 12 minutes to resume the paused function(s) before those functions are automatically canceled.

All items for auto archive are queued during the pause period. Upon resumption of the auto archive function (see paragraph [10-2.8 Resume Archive.](#)), the queued items are written to the optical disk. If the auto archive function is not resumed within the 12 minute period, then the queued items are lost.

The operator is free to change the optical disk during the pause period. Only the resume archive function is processed during the pause period.

If product/map auto archive is active and an archive function is active when Pause Auto Archive is selected, the message 'AUTO ARCHIVE PAUSE PENDING' is displayed on the feedback line. When the active archive function completes the message "AUTO ARCHIVE PAUSED" is displayed on the feedback and system status lines.

If status auto archive is active and an archive function is active when Pause Auto Archive is selected, the message "STATUS AUTO ARCHIVE PAUSE PENDING" is displayed on the feedback line. When the active archive function completes the message "STATUS AUTO ARCHIVE PAUSED" is displayed on the feedback and system status lines.

If the pause auto archive function is selected while auto archive is already paused, then the message "PAUSE ALREADY SELECTED" is displayed on the feedback line.

10-2.17 Read Background Map File.

Selection:

Alphanumeric (only): (A)RCHIVE, (R)EAD, (B)ACKGROUND
MAP FILE, <RPG>, <file - no.>

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and

Parameters: RPG ID mnemonic (four characters) File number (1-21) which specifies the background map file. File numbers 2 to 21 specify auxiliary map files. File number 1 specifies the background map file for the associated RPG.

Defaults: None, although the entry (A)RCHIVE, (R)EAD, (B)ACKGROUND MAP FILE can be used to view the identifying contents of the map files. This operates the same way as the (S)TATUS, (B)ACKGROUND MAP FILES function (see paragraph [8-1.10 Status of Background Maps.](#)).

Operation: The Read Background Map File function reads from an optical disk a set of background maps for the specified RPG and installs the map data into the selected auxiliary map or associated RPG map file.

The file number (1-21) specifies the background map file. Maps from any RPG can be read into the auxiliary map files 2 to 21. Only maps from the associated RPG can be read into the first (associated RPG) file. A check is made to ensure that the selected RPG ID matches the associated RPG ID when the first map file is specified.

The current identifying contents of the map files can be viewed by entering the following command: (A)RCHIVE, (R)EAD, (B)ACKGROUND MAP FILE, <RPG> or the command: (S)TATUS, (B)ACKGROUND MAP FILES (see paragraph [8-1.10 Status of Background Maps.](#)). The RPG ID mnemonics of the auxiliary map files and the associated RPG map file are displayed. When no maps reside in a file then asterisks (i.e.,****) are displayed in place of the four character RPG ID. See Appendix A for an example of this display.

10-2.18 Archive Background Map File.

Selection:

Alphanumeric (only): (A)RCHIVE, (A)PPEND, (B)ACKGROUND MAP FILE, <file no.>

Active

Environment: Always active except when another non-auto archive function is active on the same archive device.

Options and

Parameters: Archive device number (selected prior to this function, see paragraph [10-2.15 Select Archive Device.](#)). File number (1-21) which specifies the background map file. File numbers 2 to 21 specify auxiliary map files. File number 1 specifies the background map file for the associated RPG.

Defaults: None, although the entry (A)RCHIVE, (A)PPEND, (B)ACKGROUND MAP FILE can be used to view the identifying contents of a specific map file. This operates the same way as the (S)TATUS, (B)ACKGROUND MAP FILES function (see paragraph [8-1.10](#)

[Status of Background Maps.](#)

Operation: The Archive Background Map File function records to optical disk the specified auxiliary background map file. The file number specifies whether the maps are read from the auxiliary map files (file numbers 2 - 21) or from the associated background map file (file number 1).

The current identifying contents of the background map file can be viewed by entering the following command: (A)RCHIVE, (A)PPEND, (B)ACKGROUND MAP FILE or the command: (S)TATUS, (B)ACKGROUND MAP FILES (see paragraph [8-1.10 Status of Background Maps.](#)). The RPG ID mnemonics of the auxiliary map files and the associated RPG map file are displayed. When no maps reside in a file then asterisks (i.e., ***) are displayed in place of the four character RPG ID. See Appendix A for an example of this display.

10-2.19 Automatic Archive of Background Map Files.

Automatic Archive of the associated background maps and the first three auxiliary background maps (file numbers 2-4) is initiated by selection of any of the auto archive functions, selection of archive resume function, or completion of any of the non-auto archive write functions when no background maps exist on the current optical disk.

Automatic archive of the background map files(s) function records to optical disk up to four background map files, depending on the existence of these maps in the Associated background map file and the first three auxiliary map files (file numbers 2-4).

The current identifying contents of the background map files can be viewed by entering one of the following commands: (A)RCHIVE, (R)EAD, (B)ACKGROUND MAP FILE, <RPG> or (A)RCHIVE, (A)PPEND, (B)ACKGROUND MAP FILE or (S)TATUS, (B)ACKGROUND MAP FILES (paragraph [8-1.10 Status of Background Maps.](#)).

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Chapter 11

User Function Operations

User Function Operations provides a way for the operator to predefine up to 31 normal PUP operator selections into a single user function. Upon subsequent selection of a user function for execution, each of its predefined selections is performed in sequence, as though they had been individually selected by the operator. This feature is particularly useful for function sequences that are time consuming and frequently performed.

User functions may be linked to other user functions in any sequence, or into a loop, so that they may run continuously until cancelled. Time delays may be built into user functions to allow time for correct execution, operator observations, or prescheduled sequences.

The following subsections describe the use of user functions:

- [Section 11-1: Define a User Function](#)
- [Section 11-2: Time Delays Within a User Function](#)
- [Section 11-3: End User Function Definition](#)
- [Section 11-4: Examine/Edit User Function Definitions](#)
- [Section 11-5: Execute a User Function](#)
- [Section 11-6: Cancel User Function Execution](#)

Section 11-1: Define a User Function

Selection:

Alphanumeric

Begin Definition: (U)SER FUNCTION,(D)EFINE,<UF#>,<title>

Graphic

Definition Selections: All graphic tablet functions except those listed in Table X may be included in a user function definition. These may follow the begin definition command entered only via the alphanumeric terminal (see below).

Alphanumeric

Definition Selections: All alphanumeric terminal commands except those listed in Table X may be included in a user function. These follow the Begin Definition Command (above).

Active

Environment: Always active

Options and

Parameters: <UF#> User Function number from 1 to 60
<title> Optional 50 character title (enter a semicolon if no title)

Defaults: Blanks for title

Table 11-1: Selections Not Available in a User Function

The following selections and commands are not available for use in a User Function (all others are available):

Graphic Tablet:

- UF1 through UF30
- CANCEL UF
- All Product Parameters
- All Edit Functions excluding keyboard characters and special symbols

Alphanumeric Terminal:

- Function Keys 1 through 7
- All commands from the Control Menu
- (S)TATUS,(P)RODUCTS,(D)ISPLAY,<LINE#>
- (S)TATUS,(P)RODUCTS,(DEL)ETE,<LINE#>
- (R)OUTINE PRODUCT SET,(E)DIT
- All commands from the Gen and Distribute Products menu
- All commands from the Archive menu
- All commands from the User Function menu except (W)AIT and (EXA)MINE
- All commands from the Help menu
- All commands from the Adaptation Data menu

Operation: After entering the user function define command at the alphanumeric terminal (begin definition), feedback on all screens prompts the operator to start the user function definition. At this point, subsequent function selections from the graphic tablet and/or command entries from the alphanumeric terminal are stored in the user function definition in the order selected. They are not actually executed when selected for definition. As each legal function is accepted and stored, feedback on all screens echoes the accepted function name or command along with the user function command count. Table X lists the functions and commands that are not available for use in a user function. Should one of these be selected for storage in a user function, the feedback line on all three screens will indicate that the selected function was not accepted, via the message "FUNCTION NOT ACCEPTED". The operator may continue the definition process with the next legal function selection.

The maximum number of functions stored in one user function is 31. If, when defining a user function, the operator enters the 31st function and it is not an end define command (refer to paragraph [Section 11-3: End User Function Definition](#)), the definition session will end automatically following this entry which will be included. If it is desired to have more than 31 functions in a user function, the option exists to chain together more than one user function. Reference [Section 11-3: End User Function Definition](#) for information on chaining user functions.

Once completed, the user function definition remains in the system until it is redefined (as long as the disk is not initialized). If it is desired to "clear out" an existing user function definition, simply enter the define command for the user function number to be cleared and follow it by the end definition command.

Product parameters from the graphic tablet are not permitted in a user function. If specific product parameters (see [Chapter 5](#)) are desired, the operator must use the alphanumeric terminal (D)ISPLAY command for the product display request. Alpha-

numeric selections, such as this, which proceed to edit screens for parameter entry, operate normally during user function definition until Return is selected, following edit screen editing. That is when the entire selection from the edit screen will be placed as a single entry in the user function.

During user function define mode, the PUP will accept an asterisk in the first column of the RPG field on the edit screens for the D,G,<product name> and D,A,<product name> commands. Having an asterisk in the RPG field indicates that the RPG to which the request is directed will be inserted by the software when the user function is executed. By using this feature, a single user function can be defined to request a suite of products for a particular weather scenario. Then, the requests can be directed to any RPG when the user function is executed. Refer to section paragraph [Section 11-5: Execute a User Function](#) for details on how to specify the RPG at execution time. One-time product requests that do not use this feature can be mixed with those that do in a single user function. Those RPG-specific one-time requests will be directed to the RPG entered on the edit screen when the user function was defined.

Notes: Spaces are not valid characters in a user function title. To separate words in a title, use an underscore or a dash. The title may take up to 50 characters.

Operation of menus and Help screens on the alphanumeric terminal via Function Keys 1-7, as well as command line editing, via all possible means, prior to selection of Return, are available during user function definition. Selection of menus and help screens is not entered into the user function definition. Only the selection of a completed command line sequence or a completed edit screen sequence is entered into the user function definition as a single entry.

The following are some examples of useful user functions:

- Display of four quarter screen products with desired maps and overlays.
- Four quadrant magnification at a center selected prior to user function execution.
- Annotation text string definitions that are frequently used.
- Preparation of the displays for editing of the Radar Coded Message by displaying graphic products overlaid by the LFM grids on both graphic displays and the Radar Coded Message on the alphanumeric display.
- Selection of a list of one-time product requests from an RPG. Note, that a SEND RPG REQUEST selection must follow each graphic tablet display request in order for requests to be forwarded to an RPG if they are not available for display. From the alphanumeric terminal, the time and date fields should be entered with an asterisk for each one-time product request definition at user function definition time so that the request will be forwarded directly to the RPG at user function execution time. If blanks are entered for these fields, the last stored product of that type will be displayed. (See Section 5, Product Parameters for a further description of time and date field meanings when selected on the alphanumeric terminal.)

Section 11-2: Time Delays Within a User Function

Selection:

Alphanumeric (only): (U)SER FUNCTION,(W)AIT,<SECONDS>

Active

Environment: While defining a user function.

Options and

Parameters: <SECONDS> = seconds to wait from 1 to 3600

Defaults: None

Operation: In some instances, the operator may find it desirable to place a time delay between executing functions in a user function. This is accomplished with the WAIT command.

During user function execution, when a wait command is encountered, execution of subsequent functions in the definition is suspended for the number of seconds requested. During the wait interval, at user function execution, the operator may manually select other functions or commands as normal.

After the wait, execution of the user function resumes with the next function in the definition.

Waits may be placed back-to-back in a definition if more than a 3600-second delay is desired.

Notes: Under certain circumstances, it may be necessary for the operator to enter time delays with this command to guarantee that an entered sequence operates as intended. This is because at execution time, the functions will be requested at a rate of one per second and considerable backlogs can occur, particularly with graphic display requests, before they are actually executed. This is particularly true if timed sequences are to be displayed on multiple screens and then replaced by other displays in the same user function.

Section 11-3: End User Function Definition

Selection:

Alphanumeric (only): (U)SER FUNCTION,(EN)D DEFINE AND EXAMINE,(E)ND UF
-or-
(U)SER FUNCTION,(EN)D DEFINE AND EXAMINE,<UF#>

Active

Environment: While defining a user function, only.

Options and

Parameters: (E)ND UF (normal end)

-or-

<UF#> to receive control immediately after the user function currently being defined, whenever it is selected for execution.

Defaults: None

Operation: When the operator wishes to end the user function definition with less than 31 functions, which is most likely the case, this command is used. It will end the definition of the current user function, cause the newly created user function definition to be displayed on the alphanumeric terminal, and make the user function available for execution. The system then returns to normal operational mode where subsequent function or command selections are executed instead of being placed in a user function definition. User functions may be chained by specifying a user function number to receive control after the execution of another user function. There is no limit to the number of user functions that may be chained together. If desired, a user function may be chained to itself, thus creating a loop. To halt execution after selection in this case, the cancel user function command must be issued (refer to [Section 11-6: Cancel User Function Execution](#)) if it is in a loop.

When defining a user function and the function count reaches the maximum of 31, the end definition command is executed automatically with the (E)ND UF parameter (normal end). The user function definition appears on the alphanumeric terminal and the system returns to normal operating mode, as though the end definition command was selected manually. Thus, if chaining is desired, the U,EN,<UF#> must be entered by the 31st entry in the definition.

Section 11-4: Examine/Edit User Function Definitions**Selection:**

Alphanumeric (only): (U)SER FUNCTION,(EXA)MINE,(T)ITLES
 -or-
 (U)SER FUNCTION,(EXA)MINE,<UF#>

Active

Environment: Always active.

Options and

Parameters: (T)ITLES
 <UF#> user function number (1 to 60)

Defaults: None

Special

Note: The User Function Examine/Edit list, which is displayed following the selection of this command with the <UF#> option, has its own special editing subcommands. (See Sections 11.4.1 through 11.4.4 for a description of these special user function editing subcommands.)

Operation: When used with the (T)ITL option, this command will display, in a four-page display on the alphanumeric terminal, the current titles that were typed in on the begin definition line of each individual user function for all 60 user function definitions. The user functions that have not been defined, since the system was loaded, will have the phrase "Not defined" for their title.

When used with the <UF#> option, this command will list the current definition of the selected user function on the alphanumeric terminal with the user function number and title appearing on the top line of the screen. In the case of one-time request the additional information of data levels, resolution, elevation angle, RPG and time are also displayed. Also listed are the edit subcommands that may be used to edit the currently displayed user function definition. These commands are valid only when a user function definition is listed on the alphanumeric screen and another user function is not executing.

In the case of alphanumeric functions and commands within a user function definition, the listing of the definition is made up of the same feedback messages that are displayed when the individual functions or commands are selected in normal operating mode. For graphic tablet selections the definition list consists of the message that normally appears on the graphic tablet function selection line appended by an L or R, for left or right graphic screen.

11-4.1 Delete a User Function Command.**Selection:**

Alphanumeric (only): (U)SER FUNCTION,(DEL)ETE,<LINE#>

Active

Environment: Active only when a User Function definition is displayed via the U,EXA,<UF#> command and another user function is not executing.

Options and

Parameters: <LINE#> indicates the line number of the user function command to be deleted. The

line numbers are listed to the left of each command.

Defaults: None

Operation: This is used to delete a command from a user function definition. After the deletion is performed, the user function definition is automatically relisted and renumbered so that there is no gap in the numbering. This command may not be used to delete the end definition command (U,EN,E or U,EN,<UF#>) since a user function definition must have an End Command. To edit the User function end definition command see Section 11.4.3.

Note: As with other User function edit commands this command will immediately edit the actual user function (following the depression of the Return key). No additional steps such as depression of F1 or F2 are necessary to save the change.

11-4.2 Insert a User Function Command

Selection:

Alphanumeric (only): (U)SER FUNCTION, (I)NSERT,<LINE#>

Active

Environment: Active only when a User function definition is displayed via the U,EXA,<UF#> command and another user function is not executing.

Options and

Parameters: <LINE#> indicates the line number of the User function after which a User function command is to be inserted into the definition. It may be any line number excluding the U,EN command at the end. Zero may be entered to insert before the first command.

Default: None

Operation: This is used to add a user function command to an existing User Function definition. Following execution of this command, a feedback message instructs the operator to select the command to be inserted into the definition after the specified line number. The new command may either be an alphanumeric terminal command entered on the Command line or a graphic tablet selection. As during the normal user function definition process (see [Section 11-1: Define a User Function](#)), the inserted alphanumeric command or graphic tablet selection is not actually executed, but placed into the user function definition. All graphic tablet selections and alphanumeric commands, except those listed in Table IX, may be inserted. The only exception is the End User Function Definition command ([Section 11-3: End User Function Definition](#)) which may not be inserted. After the inserted selection is entered, the alphanumeric display is updated and renumbered showing the newly inserted command in the user function definition.

Notes: The Insert command may not be used if the user function definition contains the maximum of 31 commands (not including the End Definition command). No additional action is necessary following the entry of a valid command to have it saved.

This function will only allow the insertion of a single command (or graphic tablet selection). It must be reselected if additional commands are to be inserted.

11-4.3 Replace a User Function End Command

Selection:

Alphanumeric (only): (U)SER FUNCTION,(R)EPLACE END,(E)ND
 -or-
 (U)SER FUNCTION,(R)EPLACE END,<UF#>

Active

Environment: Active only when a User function definition is displayed via the U,EXA,<UF#> command and another user function is not executing.

Options and

Parameters: (E)ND (normal end)

-or-

<UF#> specifying another User function number to receive control immediately after the User function currently being examined is executed.

Defaults: None

Operation: This command is used to replace the existing end definition command of the user function being examined. Refer to paragraph [Section 11-3: End User Function Definition](#) for a detailed explanation of the End Definition command. When the return key is depressed, the alphanumeric terminal will update the displayed user function definition with the new end definition command.

Note: This command is useful to change the one type of "end" command with the other or else to change the <UF#> to receive control.

11-4.4 Rename User Function Title.

Selection:

Alphanumeric (only): (U)SER FUNCTION,(REN)AME UF TITLE, <NEW TITLE>

Active

Environment: Active only when a User function definition is displayed via the U,EXA,<UF#> command and another user function is not executing.

Options and

Parameters: <NEW TITLE> 1 to 50 character title

Defaults: None

Operation: This command is used to rename the title of the user function definition being examined. Following execution of this function, the alphanumeric terminal will automatically update the title line at the top of the screen with the new title. No additional action is necessary to have it saved.

Note: At least one character must be entered for the new title.

Section 11-5: Execute a User Function**Selection:**

Graphic: UF1 through UF30 (select up to two)

Alphanumeric: (U)SER FUNCTION,(E)XECUTE,<UF#>,<rpg>

Active

Environment: Always active except when a user function is already executing.

Options and

Parameters: <UF#> user function number (1 to 60) (alphanumeric terminal only).
<rpg> RPG mnemonic

Defaults: If the RPG mnemonic is left out (semicolon entered instead), the default is the last RPG entered for the U,E,<UF#> command. If the U,E,<UF#> command has not been entered since the system was installed, the default will be a blank RPG value which indicates a request to the associated RPG over the dedicated line.

Operation: All 60 user functions may be executed from the alphanumeric terminal. User functions 1 through 30 may be executed from the graphic tablet. Two user functions can be executing at one time. When executing a user function from the tablet, any button on the puck may be used. The button chosen will have no effect on the execution of the user function as screen selections are predefined at definition time.

When a user function is selected for execution, each function in the definition is executed in the order it was defined. Feedback for each function in the definition appears on the alphanumeric terminal. The user function executing are displayed in the upper left corner of the alphanumeric terminal as "UFXX" where XX is the user function number.

Due to the relatively rapid processing of user function definitions and the time inherent in graphic display requests, these graphic displays and their associated feedback messages may lag behind feedback on the alphanumeric terminal. The more graphic display requests in a user function, the greater the lag will become.

During user function execution, the graphic tablet and alphanumeric terminal are also available for manual function selection by the operator. These selections will be processed as they are received, interspersed with commands of the executing user function.

Two user functions may be executed at one time; however, chaining of user functions is provided so that another user function may be executed automatically at the conclusion of another. Refer to paragraph [Section 11-3: End User Function Definition](#) for more information concerning the chaining of user functions.

The RPG mnemonic entered as part of this command is placed in the program state file so that it will be retained if the PUP is brought down and back up. If the user function selected for execution does not contain a one-time product request, the entered RPG value will still be placed in the program state file as the default value. For that reason, it is a good idea to use the default (semicolon) after the user function number when executing user functions that do not make one-time requests.

Note: It is conceivable that a user function which looped on itself or with others, and with time delays inserted, could be left continually running, along with normal system

operation, to provide a scheduled function operation.

Section 11-6: Cancel User Function Execution

Selection:

Graphic: CANCEL UF

Alphanumeric: (U)SER FUNCTION,(C)ANCEL EXECUTION

Active

Environment: Only during the user function execution process.

Options and

Parameters: None

Defaults: None

Operation: To stop the execution of a user function prior to normal termination, this command is used. Once stopped, the user function execution cannot be resumed. It may only be re-executed from the beginning.

Since the progress of an executing user function is indicated by the feedback at the alphanumeric terminal, the point at which a user function is canceled is also, approximately, indicated by this feedback. The graphic screens may continue to change for a short while after canceling. This is due to the time lag because of the graphic display queue as described in [Section 1-4: Graphic Display Function Queuing and Cancelling](#).

If the user function contains selections which tie up the alphanumeric terminal, then its feedback line may also lag behind the actual selection being sent out.

Note: If two user functions are running at the same time and a cancel is executed, both user functions will be canceled.

Chapter 12

Editing Products, Annotations, Maps, Alert Areas

This section includes descriptions of the following:

[Section 12-1: Edit/Send RCM \(Radar Coded Message\)](#)

[Section 12-2: Generation/Distribution of Free Text Messages](#)

[Section 12-3: Edit/Send Product Annotations \(Graphic\)](#)

[Section 12-4: Edit Background Maps](#)

[Section 12-5: Edit Alert Areas and Alert Categories](#)

Section 12-1: Edit/Send RCM (Radar Coded Message)

In general, there are two types of RCM products sent out by the RPG. One type is the operational RCM which is called the post-edit alphanumeric RCM. This RCM is available to all PUPs and is displayed only on the alphanumeric terminal via the DISPLAY menu. It is requested from the RPG either via the DISPLAY menu or the RPS list (mnemonic=RCM). This is an alphanumeric-only product which may have already undergone editing at the PUP/RPGOP and been returned to the RPG for distribution.

The other type of RCM is the pre-edit version to be edited by one designated PUP/RPGOP per NEXRAD Unit (per RPG). There is adaptation data at the PUP/RPGOP which specifies whether the PUP/RPGOP is designated for editing of the pre-edit version of the RCM. This is called the Edit RCM flag. It is on the RCM Parameter edit screen which is accessible from the Extended Adaptation Data menu, which, itself, is accessible via password from the Adaptation Data menu. The RPG also has adaptation data which specifies which PUP/RPGOP in the NEXRAD Unit is designated to receive, edit and return the pre-edit version of RCM. This adaptation data must match the PUP/RPGOP's adaptation data as to who is to do the RCM editing. The rest of this section refers only to the PUP/RPGOP designated to edit the RCM and only to the pre-edited version of the RCM.

12-1.1 The Pre-Edited RCM Product.

The Pre-Edit RCM has a special product ID number (83) and consists of two product types. One is called the intermediate graphic RCM product; the other is called the pre-edit alphanumeric RCM product. Refer to [Figure 12-1. Radar Coded Message Quick Reference](#) for the Quick Reference Guide to the Pre-Edit RCM Product and [Figure 12-2. Radar Coded Message Editing](#) for a detailed guide to the parts of the Pre-Edit RCM Product and Editing notes.

<u>RCM PART</u>	<u>PORTION</u>	<u>INIT. SUPPLIED BY RPG</u>	<u>CREATED AT PUP</u>	<u>EDITABLE AT</u>	<u>MAX SIZE</u>	<u>EDITING NOTES</u>
A	Intensity	X		Graphic	8 pages (graphic) of 10 lines, 70 char/line each page	Edit intermediate graphic product. Box ID's and intensity values are updated automatically when the graphic product is edited. Header is updated automatically where appro- priate.
A	Max top	May Be	May Be	Graphic	10 max. tops, one per line	0 or 1 max. top supplied by the RPG. Modify, add or delete max. tops via menu and cursor selection of field. Locations selected on LFM grid in product area.
A	Centroids	X		Graphic	One page (graphic) of 10 lines, 70 char/line	All centroids (start with C) supplied by the RPG. Deleted auto- matically if "Intensity" graphic edit sets centroid location to black. May be deleted or edited here by field and menu selections. New lines start with C. Centroid header updated automatically.
B	VAD Winds	X		Alpha- numeric	One page (alpha) of 17 lines, 70 char/line	May be edited only at alphanumeric terminal via G, R, E, B command and edit screen. See Section 12.1.2.3.1.1.
C	TVS/Meso	X		Graphic	One page (graphic) of 3 lines TVS max, 6 lines Meso max, plus pt. C Header line	Part C Header may not be edited. TVS, Meso headers containing counts updated automatically (one each type). Modify, add or delete TVS or Meso fields by field and menu selections.
C	Centroids	X		Graphic	One page (graphic) of 10 lines, 70 char/line	See notes for part A, Centroids (has Storm tops and Hail Indicators instead of Directions and Speeds as in pt. A).

Figure 12-1. Radar Coded Message Quick Reference
(Sheet 1 of 2)

Figure 12-1 Radar Coded Message Quick Reference
(Sheet 2 of 2)

<u>RCM PART</u>	<u>PORTION</u>	<u>INIT. SUPPLIED BY RPG</u>	<u>CREATED AT PUP</u>	<u>EDITABLE AT</u>	<u>MAX SIZE</u>	<u>EDITING NOTES</u>
C	Precip. Type/ Trend		X	Graphic	One page graphic 10 lines. 70 char/line	Template provided. Additional /PCTR's start on new line. Add/modify/delete/ type and trend by field and menu selections. Locations added by menu and selections on graphic product.
C	LEWP thru MLTLVL		X	Graphic	One page (graphic) of 10 lines. 70 char/line. 2 lines	Template provided with /LEWP,/BASE, /MALF,/PALF and /MLTLVL headers, each two lines apart. Select template field to edit. For LEWP, add line on graphic product. For MLTLVL, add height from menu. Fields may be reedited.
C	Hurric./ Trop. Storm		X	Alpha- numeric	One storm (2 lines)	May be edited only at alphanumeric terminal via G,R,E,C Command and pt. C edit screen. See Section 12.1.2.3.1.1. Template provided with /EYE and /CNTR, one each, on two lines. The rest must be manually entered via keyboard.
C	Remarks		X	Alpha- numeric	7 lines 70 char/line	May be edited only at alphanumeric terminal via G,R,E,C Command and pt. C edit screen. Template provided with /REM:. The rest must be manu- ally entered via keyboard.
C	Editors		X	Alpha- numeric	3 letters	May be edited only at alphanumeric terminal via G,R,E,C command and pt. C edit screen. Template provided with EDITED:. The editor's initials must be entered (via keyboard) before returning the RCM to the RPG.

RCM Part A, Intensity (Menu 1) Graphic Screen

07/27/88 13:17

<-- Alphanumeric displayed here, 10 lines/page 8 pages max.

/NEXRAA rrrr ddmmyytrrr UNEDITED xxxxx

/MDmmmm /SCssss /Nlnnnn

gggjii...i.gggjii...i etc.

Pt. A Header, updated automatically

8 pages max

Pt. A Header on p.1 only

Edit the Intermediate Graphic Product, only, to edit this portion

Notes on Alphanumeric (above), All initially supplied by the RPG:
Part A Header:rrrr - Radar ID
ddmmyytrrr - day, month, year, time (GMT)

UNEDITED or EDITED (if reedit)
xxxxx - blank if intensities (i's) listed

RADNE if no intensities listed
RADOM if radar system down

mmmm - Operational Mode: PCPN or CLAR
ssss - Scan Strategy (xx scans in yy min)

nnnn - No. of intensities reported. (Includes imbedded 0 levels if reported, includes repeated intensities e.g., 2B - 3 intensities)

NOTE: Header fields are changed automatically and are not editable.

Intensities: ggg - Row column, Subgrid box location of 1/16 LFM (Selections are from LFM grid).
1 - Intensity Value (0-8) where out to 230 km 0 to 6 is reported (increasing intensities).
- Beyond 230 km: 0 - below threshold, 8 - low intensity, and 7 - high intensity. 0 is reported only within a string to decrease the size of the message.
- For subsequent boxes with intensities (to the east of ggg), additional i's are listed.
For multiple i's of the same value, repeat count letters are used, e.g., 2B - 3 2's, 2C - 4 2's, 2Z - 27 2's.

For 2 2's, 22 is listed (instead of 2A). For repeats above 27 the intensity number is listed again.

- To change intensities, select the area followed by the color level on the color bar (may be repeated).

PAGE FWD

PAGE BACK

RCM PART A EDIT INTENSITY

EDIT GRAPHIC PRODUCT

HARDCOPY REQUEST ACCEPTED

HARDCOPY

Figure 12-2. Radar Coded Message Editing
(Sheet 1 of 9)

12-5

07/27/88 13:19

<-- Alphanumerics displayed here, one page max.

<-- Intermediate Graphic
Product displayed here.

EDIT RCM PART A
A/R (RDA) 0 DEG
0 KM
QUEUE EMPTY

HARDCOPY

HARDCOPY REQUEST
ACCEPTED

/MThhh:ggg																																																							
<ul style="list-style-type: none"> - The RPG will supply 0 or 1 max top (will be blank if 0). - The editor may add max tops (up to 10 total), edit or delete max tops. Each max top will be on a new line (Starts /MT) - Locations are selected (or changed) by selection on the graphic product area. 																																																							
Notes on Alphanumerics (above), one max top (/MT) may be supplied:																																																							
hhh = Height x 100 ft., e.g. 020 = 2,000 ft., above MSL ggg = Row column, Subgrid box location on 1/16 LFM grid. (Selection's are from LFM grid).																																																							
<table border="1"> <tr> <td>HEIGHT IN HINDS OF FEET</td> <td colspan="6"></td> </tr> <tr> <td>SELECT LOC</td> <td colspan="6"></td> </tr> <tr> <td>1 2 3 4 5 6 7 8 9 0</td> <td colspan="6"></td> </tr> <tr> <td>ENTER</td> <td colspan="6"></td> </tr> <tr> <td colspan="7"></td> </tr> <tr> <td>ADD MAX TOP</td> <td colspan="6"></td> </tr> <tr> <td>DELETE MAX TOP</td> <td colspan="6"></td> </tr> </table>							HEIGHT IN HINDS OF FEET							SELECT LOC							1 2 3 4 5 6 7 8 9 0							ENTER														ADD MAX TOP							DELETE MAX TOP						
HEIGHT IN HINDS OF FEET																																																							
SELECT LOC																																																							
1 2 3 4 5 6 7 8 9 0																																																							
ENTER																																																							
ADD MAX TOP																																																							
DELETE MAX TOP																																																							
RCM PART A EDIT MAX TOP	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT INTENSITY	EDIT CENTROIDS																																																		
SELECT /MT TO START EDIT	CANCEL CHANGE	END/SAVE PART A	RESUME EDITING	EDIT MAX TOP																																																			

Figure 12-2. Radar Coded Message Editing
(Sheet 2 of 9)

RCM Part C, Centroids (Menu 5) Graphic Screen

07/27/88 13:32

<-- Alphanumerics displayed here, one page (10 lines) max.

/NCENnn: Ccggg ShhhHi,Ccggg ShhhHi... up to one page (10 lines)
- New lines start with C (new Centroid)
- Individual centroids may be deleted or modified by the editor
- New locations (g's) are selected on the graphic product area
- Centroids are automatically deleted here if they are deleted in Part A Intensities (set to black), or Part A Centroids.

Notes on Alphanumerics (above), supplied by the RPG:
nn = No. of centroids listed here. This number is updated automatically if centroids are deleted.
cc = Centroid number = Storm ID number (includes alphabetic characters)
ggg = Location of Centroid = Row, Column, Subgrid box on 1/16 LFM grid. (Selections are from LFM grid).
hhh = Height x 100 ft, e.g., 100 = 10,000 ft, above MSL
i = Hail indicator: N,P,H, or U (see menu on left) is updated automatically if centroids are deleted.

1 2 3 4
5 6 7 8
9 0 A B
C D E F
G H I J
K L M N
O P Q R
S T U V
W X Y Z

ENTER

DELETE
CENTRO
ID

EDIT RCM PART C
A/R (RDA) 0 DEG
0 KM
QUEUE EMPTY

HARDCOPY

RCM PART A EDIT CENTROIDS	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT TVS/MESO	EDIT PCTR
SELECT C(CENTROID) ID TO START EDIT	CANCEL CHANGE	END/SAC PART A	RESUME EDITING	EDIT CENTROIDS	EDIT LEWP ETC.

HARDCOPY REQUEST
ACCEPTED

Figure 12-2. Radar Coded Message Editing
(Sheet 3 of 9)

12-8

RCM Part B VAD Winds (Edit Screen 1) Alphanumeric Screen

```

RCM PART B (13:30 12/28/88) EDIT SCREEN      Page 1 of 1
COMMAND:
FEEDBACK:EXECUTED - G, R, E, B

(M)ODIFY                      (C)ANCEL CURRENT EDIT [Redisplay original]

Press function key F1 or F2 to exit and to save all changes. Press return to
allow command entries.

/NEXRBB rrrr ddmmyytttt xxxxx      ]Part B Header line, NOT updated automatically
hhhcdddfff,hhhcdddfff...          ]VAD Wind Fields
/ENDBB                             ]Part B End Line

17 lines, 70 char/line (one page) max. for part B (15 lines of
                                wind info.) Supplied by RPG. All editing performed manually via
                                alphanumeric keyboard.

Header Fields:  rrrr = Radar ID
                ddmmyytttt = day, month, year, time (GMT)
                xxxxx = blank if wind data included or
                    VADNA if wind data not available

VAD Wind Fields: hhh = height x 100 ft., e.g., 100 = 10,000 ft, above MSL.
                  c  = confidence level A-G, where A=1, B=2, etc. M/S RMS
                  ddd = wind direction in degrees
                  fff = wind speed in knots

```

Figure 12-2. Radar Coded Message Editing
(Sheet 4 of 9)

RCM Part C, TVS/Meso (Menu 4) Graphic Screen

Figure 12-2. Radar Coded Message Editing
(Sheet 5 of 9)

<div>/NEXRCC rrrr ddmmyytttt } Part C Header (uneditable) /NTVSnn: TVSttggg,TVSttggg... } up to 3 lines of TVS's /NMESnn: Mmmggg,Mmmggg... } up to 6 lines of Meso's - Additional lines start with TVS or M - TVS's and M's may be added, modified or deleted - Locations (g's) are selected on the graphic product area.</div>					
	Notes on Alphanumerics (above), supplied by RPG:				
TVS/ MESO ID	Part C Header: rrrr = Radar ID ddmmyytttt = day, month, year, time (GMT)				
SELECT LOC					
1 2 3 4 5 6 7 8 9 0	TVS Info: nn = TVS count (updated automatically) tt = TVS ID (This is not the storm ID)(numeric only) ggg = Location = Row, Column, Subgrid Box on 1/16 LFM grid (Selections are from LFM grid).				
ENTER					
	Meso Info: nn = Meso Count (updated automatically) mm = Meso ID (This is not the storm ID)(numeric only) ggg = Location (see above)				
ADD TVS					
ADD MESO					
DELETE TVS/ME SO					
RCM PART C EDIT TVS/MESO	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT TVS/MESO	EDIT PCTR
SELECT TVS OR M TO START EDIT	CANCEL CHANGE	END/SAVE PART C	RESUME EDITING	EDIT CENTROIDS	EDIT LEWP ETC.

07/27/88 13:30

<-- Alphanumerics displayed here, one page (10 lines of 70 char/line) max.

<-- Intermediate Graphic Product displayed here.

EDIT RCM PART C
A/R (RDA) 0 DEG
0 KM
QUEUE EMPTY

HARDCOPY

HARDCOPY REQUEST
ACCEPTED

RCM Part C. Centroids (Menu 5) Graphic Screen

07/27/88 13:32

<-- Alphanumerics displayed here, one page (10 lines) max.

/NCENnn: Cccggg ShhhHi,Cccggg ShhhHi... up to one page (10 lines)

- New lines start with C (new Centroid)
- Individual centroids may be deleted or modified by the editor
- New locations (g's) are selected on the graphic product area
- Centroids are automatically deleted here if they are deleted in Part A Intensities (set to black), or Part A Centroids.

	Notes on Alphanumerics (above), supplied by the RPG:
STORM ID	nn = No. of centroids listed here. This number is updated automatically if centroids are deleted.
SELECT LOC	cc = Centroid number = Storm ID number (includes alphabetic characters)
HEIGHT IN HND S OF FEET	ggg = Location of Centroid = Row, Column, Subgrid box on 1/16 LFM grid. (Selections are from LFM grid).
HAIL N NONE P PBL H HAIL U UNKN	hhh = Height x 100 ft, e.g., 100 = 10,000 ft, above MSL i = Hail indicator: N,P,H, or U (see menu on left) is updated automatically if centroids are deleted.
1 2 3 4 5 6 7 8 9 0 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	
ENTER	
DELETE CENTRO ID	

EDIT RCM PART C
A/R (RDA) 0 DEG
0 KM
QUEUE EMPTY

HARDCOPY

RCM PART A EDIT CENTROIDS	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT TVS/MESO	EDIT PCTR
SELECT (CENTROID) ID TO START EDIT	CANCEL CHANGE	END/SAC PART A	RESUME EDITING	EDIT CENTROIDS	EDIT LEWP ETC.

HARDCOPY REQUEST ACCEPTED

Figure 12-2. Radar Coded Message Editing
(Sheet 6 of 9)

RCM Part C. Centroids (Menu 6) Graphic Screen

/PCTRyyyy,aaa:gg:gg... - Totally created by editor (up to one page = 10 lines) - Starts with /PCTR (only) template (Select to edit) - Additional Precip. type/trends start with a new /PCTR on a new line (Select ADD PCTR)										07/27/88 13:34	<-- Alphanumerics displayed here, (starts with template only)
Notes on Alphanumerics (above), NOT supplied by the RPG: yy = Precipitation type (from one to four letters) where T is the optional Thunderstorm prefix followed by one of the selections listed at left for PR TYPE. aaa = Precipitation trend (from one to three letters). Select one of four options listed at left for TREND. gg = The g's identify the 1/4 LFM grid box ID's (2 letters each = the first two letters of the 1/16 LFM Grid Box ID's) identifying one or more grid boxes of the precipitation area. The areas are selected on the graphic product display in conjunction with the POLYGON or BOX selections at left.											
TSTRM PREFIX T											
PR TYPE: R RW S SW ZR ZRW IP IPW L ZL											
TREND: + - NC NEWS											
START POLYGON											
END POLYGON											
START BOX											
END BOX											
DELETE LINE/BOX											
ADD PCTR											EDIT RCM PART C A/R (RDA) 0 DEG 0 KM QUEUE EMPTY
DELETE PCTR											HARDCOPY
RCM PART C EDIT PRECIP TYPE/TREND	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT TVS/MESO	EDIT PCTR	HARDCOPY REQUEST ACCEPTED					
SELECT /PCTR TO START EDIT	CANCEL CHANGE	END/SAVE PART C	RESUME EDITING	EDIT CENTROIDS	EDIT LEWP ETC.						

Figure 12-2. Radar Coded Message Editing
(Sheet 7 of 9)

RCM Part C. Centroids (Menu 7) Graphic Screen

07/27/88 13:36

<-- Alphanumerics displayed here, (starts with 6 templates only)

<-- Intermediate Graphic
Product displayed here.

```
EDIT RCM PART C
A/R (RDA) 0 DEG
0 KM
QUEUE EMPTY
```

HARDCOPY
HARDCOPY REQUEST
ACCEPTED

- Two lines are provided for each field. Only height and/or locations may be added by the editor.					
- Select the desired template to add/edit height or locations					
- LEWP = Line Echo Wave Pattern, BASE = Base of elevated layer, MALF = Mostly Aloft Precip., PALF = Partially Aloft Precip., MLTLVL = Melting Level					
Notes on Alphanumerics (above), NOT supplied by the RPC:					
gg = 1/4 LFM grid box location(s)					
- For LEWP: use START LEWP and END LEWP and select points along a line (as few as possible to define the line). Up to 2 lines may be defined (2 wave patterns).					
- For BASE, MALF or PALF use POLYGON or BOX Selections and select areas or boxes, up to 43 boxes for each (that which fits in the provided space).					
hhh = Height x 100 ft above MSL					
RCM PART C EDIT LEWP ETC.					
SELECT TEMPLATE TO EDIT					

Figure 12-2. Radar Coded Message Editing
(Sheet 8 of 9)

RCM Part C Remarks, Editors Initials (Edit Screen 2) Alphanumeric Screen

RCM PART C (13:30 12/28/88) EDIT SCREEN		Page 1 of 1
COMMAND: _		
FEEDBACK:EXECUTED - G, R, E, B		
(M)ODIFY	(C)ANCEL CURRENT EDIT [Redisplay original]	
Press function key F1 or F2 to exit and to save all changes. Press return to allow command entries.		
/EYEdddfffc:ggg;LATeee.ex,LONeee.ey	Manually enter all this information for a	
/CNTRdddfffc:ggg;LATeee.ex,LONeee.ey	hurricane or tropical storm (except /EYE and	
/REM: (enter optional remarks, up to 7 lines) /CNTR template provided)		
Hurric/TS. Notes: ddd = Direction in degrees of Hurric/TS movement		
fff = Speed in knots of Hurric/TS movement		
ggg = 1/16 LFM grid box ID of Eye or Center (one box ID).		
eee.e = Lat. or Lon. degrees and tenth degree		
x = N or S		
y = E or W		
/EDITED:int	The Editor's Initials	
/ENDCC	MUST be entered here	
/ENDALL	(3 chars. max)	
NOTE: To send the edited RCM to the RPG (after entering editor's initials)		
Depress F1 or F2 to exit this screen, then enter G,S,R command.		

Figure 12-2. Radar Coded Message Editing
(Sheet 9 of 9)

12-1.1.1 The Intermediate Graphic RCM Product.

The Intermediate Graphic RCM product is a geographic product similar to the Composite Reflectivity product but with the main difference being that each color level box fits exactly within the 1/16 LFM grid for the area of coverage. The area from the Radar location out to 124 nmi (230 km) radius has seven color levels including the background color, and the area between 230 and 460 km (228 nmi) radius has three color levels including the background color (nine colors total). This graphic product may be manipulated, e.g., recentered, magnified, filtered, have maps added etc., as any other geographic product. During the RCM editing procedure on the graphic screen, the intermediate graphic product is displayed in a window in the product display area, surrounded by an area at the top to display a portion of the alphanumeric pre-edit RCM product, and an area to the left and bottom containing an RCM graphic edit menu (of which there are seven). On the right is the normal product ID and status line display area. The Intermediate Graphic portion of the RCM is also displayable (not on a screen currently being used for RCM editing) without the surrounding top left and bottom information, in the full product display or quarter screen area, as any other graphic product. In this case, the latest received (or any previously stored) version still in the data base may be displayed by selecting "RCM" in the product (dark blue) area of the graphic tablet and optionally using the PRODUCT BACK function or Pick-A-Product screen selection. This may be most useful while the RCM editing is being performed on the other graphic screen for comparison purposes. Previous (as opposed to the latest received) versions of this intermediate graphic product available in the data base will always be the post-edit version if it was sent back to the RPG, or, the original pre-edit version if it was not. Refer to Section 12.1.2.3.1 for the graphic screen intermediate graphic product (as well as graphic screen alphanumeric) editing procedure.

The Intermediate Graphic RCM product is not a part of the post-edit RCM product, which is an alphanumeric-only product. The Intermediate Graphic RCM product portion is not returned to the RPG with the edited alphanumeric portion but is merely used as a tool in the RCM editing procedure. It is used as (1) a frame of reference, since it is a graphical representation of the information contained in alphanumeric form in the RCM product, and (2) an editing tool, whereby the operator may graphically edit the Intermediate Graphic RCM product and have the corresponding intensity (and centroid) information in the alphanumeric portion of the product (which is the "real" RCM product) updated automatically. Editing of the Intermediate Graphic RCM product is performed via the RCM Part A "Edit Intensity" menu which comes up when you select "EDIT RCM PART A" on the graphic tablet. See paragraph [12-1.2 Editing/Sending the Pre-Edit RCM Product](#), and [Figure 12-2. Radar Coded Message Editing](#) for more information about editing this product.

12-1.1.2 The Pre-Edit Alphanumeric RCM Product.

The Pre-Edit Alphanumeric RCM Product is received from the RPG, transformed, and partially created by the PUP operator into the Post-Edit RCM product, which is an alphanumeric-only product. [Figure 12-2. Radar Coded Message Editing](#) indicates which portions are received from the RPG and which portions are optionally created by the editor at the PUP. Only the entry of the editor's initials (on the Part C Edit Screen at the alphanumeric terminal) is mandatory before returning the Pre-Edit RCM to the RPG. It is not until it is actually sent to the RPG that it becomes a Post-Edit RCM (a normal RCM).

The actual fields of the Pre-Edit RCM are as shown in [Figure 12-2. Radar Coded Message Editing](#), on its respective pages, including only those lines which start in the first column of the alphanumeric display area of each menu or edit screen. The rest of the information in [Figure 12-2. Radar Coded Message Editing](#) are notes.

There are three ways to display the Pre-Edit RCM product prior to the expiration of editing time or sending it to the RPG, and each way will display the product differently.

Display Method 1: Display for Editing

The RCM product is displayed on the graphic and alphanumeric screens as shown in [Figure 12-2. Radar Coded Message Editing](#) during the editing procedure. Actual modification of the product is optional on these screens so that they may be used merely to review the product without editing. This is available only after receiving a new Pre-Edit RCM and prior to either sending it back to the RPG or to edit time expiration, whichever comes first. See paragraph [12-1.2.3 Procedure to Edit/Return RCM to RPG](#), for the selections necessary to display the various parts in this case.

Display Method 2: Display Latest Edit Version

This method will display, on the alphanumeric screen, the most recently received Pre-Edit RCM. If that product has been edited and returned to the RPG, it will be displayed as it was after editing. If that product has not been edited at all, it will be displayed as it was when it was received from the RPG. If that product has undergone some editing, but not yet been returned to the RPG, the latest "saved" version of each individual section (each page of Figure 12-2) will be displayed.

This method will display an expanded version of the product where all sections of the product (with the exception of Part A Intensities), will be expanded to their maximum size as specified in [Figure 12-2. Radar Coded Message Editing](#). For example, Part A Max.Top, will always take up five lines of this display even though some or all of them may be blanks. Part A Intensities may not be expanded beyond the number of lines it took up when last saved.

Only the PUP designated for RCM editing may use this method, as well as method one, to display the latest received Pre-Edit RCM product.

The three parts of the RCM product are each displayed with a separate command on the alphanumeric terminal in this case. Within one part, paging forward or back with the function keys applies.

The commands to display the RCM, in this case, are:

(G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(D)ISPLAY,(A) for part A
(G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(D)ISPLAY,(B) for part B
(G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(D)ISPLAY,(C) for part C

Display Method 3: Display Normal RCM Product

This method of RCM display is available at all PUPs. It utilizes the normal command to display an alphanumeric RCM product at the alphanumeric terminal, i.e.,

(D)ISPLAY,(A)LPHANUMERIC PRODUCT,RCM

In this case, the RCM product is displayed in a compacted form at the alphanumeric terminal where there are no blank space lines. The entire product runs together, i.e., there is no separate access to parts B and C except by paging forward from page 1 of part A.

The difference between an "RCM Edit" PUP, in this case, and a "Non-RCM-Edit" PUP is that at "RCM-Edit" PUPs Pre-Edit RCM products which were not sent to the RPG are also available for display even if they were never re-received (Post-Edit version RCM) from the RPG. In that case, it is always the originally-as-received version of the product which is displayed even though they may have been previously edited (but not sent). If an RCM has undergone editing or partial editing but it has not yet been sent to the RPG, this command will (unlike the others) display the original-as-received version of the Pre-Edit RCM. If it has been sent to the RPG this command will display the Post-Edit version.

Fields in the Pre-Edit RCM product which had no information after the field header (because none was added or because it was deleted during editing) do not appear at all in the Post-Edit RCM prod-

uct. For example, if the Pre-Edit RCM, Part A, had a max top (/MThhh:ggg) sent from the RPG and the editor deleted it, then there would be no "MT" in the Post-Edit RCM product (Display Method 3 only).

12-1.2 Editing/Sending the Pre-Edit RCM Product.

Section 12.1.2.1 discusses the timing associated with RCM product editing as well as notification messages to the operator. The rest of [12-1.2 Editing/Sending the Pre-Edit RCM Product.](#) discusses RCM editing procedures and the procedure to send the edited RCM to the RPG.

12-1.2.1 RCM Edit Timing and Warning Messages.

There are four times associated with RCM product editing:

- a. Time after receipt of the product for editing to begin.
- b. Time after start of edit to complete the edit. (Add one minute to this for the RPG Adaptation Data setting.)
- c. Time prior to the expiration of time b. at which the first warning message is given.
- d. Time prior to the expiration of time b. at which the second (and last) warning message is given.

Times a. and b. are in RPG Adaptation Data and are sent to the RCM edit PUP along with the product. Time b. in RPG Adaptation Data should be one minute longer than the actual edit time.

Times c. and d. are in PUP Adaptation Data and are selected via the "RCM Parameters Edit Screen".

In addition to these selected times, there is an additional minute given (after which time b. expires) for the operator to send the edited RCM to the RPG. The operator must have entered his or her initials, at a minimum, to the end of part C during the permitted editing time before sending will be permitted.

If the product arrives for editing and time a. expires before the edit session begins, either via the graphic tablet or the alphanumeric terminal, then the editing is disallowed. At the same time, the RPG will send out the Pre-Edit version RCM as the Post-Edit version RCM, since it will not be notified that editing has begun on time.

If editing does begin on time and the time expires to send the edited RCM product back (time b. plus one minute) to the RPG then the RPG will automatically send out the Pre-Edit version RCM as the Post-Edit version RCM. This will also occur if communications fail or the PUP fails and the edited product cannot be returned.

RCM Edit Notification and Warning Messages

All RCM edit notification and warning messages appear on the system status lines on all three screens and all are filed in the system status file along with the date/time of display. Thus, if the operator wants to check what time a particular message was displayed, simply type "S,S" and check in the system status file if the message no longer appears on the screens. Most edit notification/warning messages flash on their respective screens and most cause the alphanumeric terminal to beep 10 times when they are displayed. This information is included with the description of each message below.

When a Pre-Edit RCM arrives from the RPG for editing, the following message is displayed:

"RCM READY X MIN TO STRT EDIT" (Flash and Beep)

If editing begins (on the graphic tablet or alpha terminal) within this time, then the following message is displayed:

"XX MIN TO EDIT RCM"

If the edited RCM is not sent back to the RPG prior to the time for display of the first edit timeout warning message, then it is displayed as follows:

"X MIN LEFT FOR RCM EDITING" (Flash and Beep)

If the edited RCM is still not sent back to the RPG, prior to the time for display of the second edit timeout warning message, then it is displayed as follows:

"X MIN LEFT FOR RCM EDITING" (Flash and Beep)

If the operator sends the edited RCM back to the RPG in the permitted time period, the following message is displayed:

"EDITED RCM SENT TO RPG"

If the time to edit expires prior to sending the RCM back to the RPG, the operator still has one minute to send it. In this case the following message appears:

"EDIT CNCLD 1 MIN TO SEND RCM" (Flash and Beep)

If the time to send the edited RCM back expires prior to its being sent, the following message appears:

"*TIME OUT* CAN'T SEND RCM" (Beep)

The previous six messages can only appear if editing has begun in the allotted time. If the Pre-Edit RCM arrives from the RPG and the operator does not begin editing in the allotted time, then the following message appears:

"*TIME OUT* CAN'T EDIT RCM" (Beep)

If the operator has begun editing an RCM and a second Pre-Edit RCM arrives prior to the first one's being returned to the RPG, and prior to the expiration of the time to return the first one, then the following message is displayed:

"NEW RCM X MIN TO STRT EDIT" (Flash and Beep)

In this case, if the RCM is sent to the RPG it will be the previous one that is sent. Additional edits will be performed on the previous one until it is sent, or time expires, after which time additional edits will not be permitted. The previous RCM must be completed and sent before editing can be performed on the new RCM. This all must take place within the X minutes specified above. Sending of the RCM will subsequently apply to the new one. If the second one is waiting in the wings, as it were, the editing warning message will apply to the previous one and will appear as follows:

"X MIN TO EDIT & SEND RCM" (Flash and Beep)

This message will normally appear shortly after the "NEW RCM..." message above and indicate that, due to the arrival of a new RCM, the edit and send time of the previous RCM has been shortened to the time-to-begin-edit of the new RCM. The previous RCM must have its editing completed and sent

to the RPG before editing will apply to the new RCM.

12-1.2.2 Procedure to Sign Off/Return RCM Without Edit.

In most cases, the Pre-Edit RCM which arrives will require no editing but merely an inspection, the entering of the operator's initials, and its return to the RPG. For that reason, this section is included as a quick reference.

- a. Inspection of Pre-Edit RCM. The various parts of the Pre-Edit RCM may be inspected in any order if desired. Refer to paragraph [12-1.2.3 Procedure to Edit/Return RCM to RPG.](#) for the commands to inspect all the various pieces of the Pre-Edit RCM. For a simple inspection of the Intermediate Graphic Product, select:

"EDIT RCM PART A"

at the top of the graphic tablet. The Intermediate Graphic Product and the Intensities portion of part A will be displayed on the elected graphic screen. If no editing is desired, select CANCEL ALL to exit the edit screen.

To sign-off the RCM, enter the command:

"G,R,E,C" on the alphanumeric terminal.

The part C edit screen will then be displayed.

Move the cursor down to the position following /EDITED: and type your initials. The easiest way to move the cursor there is to select either the HOME key, or TAB a few times.

Depress F1 or F2 and then enter the command:

G,S,RCM To send the RCM to the RPG

12-1.2.3 Procedure to Edit/Return RCM to RPG.

Access of RCM Portions to Edit. Refer to [Figure 12-3. Access of RCM Portions to Edit](#) for a reference of how to access the various parts and portions of the Pre-Edit RCM product for editing.

12-1.2.3.1 Editing RCM.

The various portions of the Pre-Edit RCM product may be inspected or edited via the graphic menus or alphanumeric edit screens shown on the respective pages of [Figure 12-2. Radar Coded Message Editing](#). These portions may be accessed in any order. They may be skipped or they may be accessed multiple times. The concept of saving edited portions, reediting edited portions or canceling the edit and returning to the original applies to the three parts A, B, and C separately.

Note:

Editing can only take place at one position at a time, i.e., either the graphic screen or the alphanumeric terminal.

[Figure 12-4. Common RCM Edit Selections](#) describes the graphic screen menu selections (which are common to all the RCM graphic screen menus) and the alphanumeric RCM edit screen commands which are common to both RCM edit screens. A careful review of the commands described in [Figure 12-4. Common RCM Edit Selections](#) should impart an understanding of the capabilities of moving between RCM portions, saving and canceling changes, as well as displaying the original pre-edited portion for review during editing. For the graphic screen menus, the common selections are on the bottom portion of the menus while only menu specific items are on the left.

In addition to the [Figure 12-4. Common RCM Edit Selections](#) information, the concept of "saving" the RCM and the "original" RCM will be mentioned. There are two types of "saves" of edited RCM data. A "soft" save will merely temporarily keep data in the computer memory while editing is being performed. This edited data is subject to loss if: 1) CANCEL CHANGE, CANCEL CURRENT EDIT, or F3 on the alphanumeric terminal is selected, or if 2) CANCEL ALL (Graphic Screen only) is selected. It is also lost on the alphanumeric screen if the display is replaced. A "hard" save will save the edit changes to the disk. This will happen for the graphic screen when: 1) SAVE CHANGE is selected, 2) END/SAVE PART A or C is selected, 3) DISPLAY ORIGINAL is selected, or 4) EDIT-- (another portion) is selected for editing. For the alphanumeric edit screens for part B and C, a "hard" save to disk is performed only when function key F1 or F2 is selected.

The "original" RCM is the version which arrived from the RPG. This is available for review during editing prior to sending the edited RCM to the RPG. Once the RCM is sent to the RPG, the original is no longer accessible. The original is accessible during editing in two ways: 1) Display the products as a normal product (graphic or alphanumeric) without selection for editing or selection of the edit version, or, 2) DISPLAY ORIGINAL (or redisplay original on alphanumeric screen) on the same screen while editing.

When editing the RCM portions on the alphanumeric screen (similar to the way the RPS edit screen works), only those commands listed on the edit screen are available. F1 or F2 must be selected to return to the normal PUP command language.

The menu or edit screen specific instructions for the various portions of the RCM product are shown in their respective order in [Figure 12-4. Common RCM Edit Selections](#) even though they do not have to be edited in that order. For the graphic screen menus, this describes the fields of data that may be edited, and the menu selections on the left used to edit them. For the alphanumeric edit screens, the fields which may be edited are listed.

12-1.2.3.1.1 Alphanumeric Edit Screen Edit Procedure.

In addition to the regular alphanumeric keyboard alphanumerics, the following keys are used for alphanumeric edit screen editing for RCM.

- a. CURSOR UP - This key has an upward arrow on it and is located on the right side of the keyboard. When this key is depressed, the cursor on the alphanumeric screen moves up one position. This key is used in conjunction with the other cursor positioning keys to move the cursor to a location where an update is to be made.
- b. CURSOR DOWN - This key has a downward arrow on it and is located on the right side of the keyboard. When this key is depressed, the cursor on the alphanumeric screen moves down one position. This key is used in conjunction with the other cursor positioning keys to move the cursor to a location where an update is to be made.
- c. CURSOR LEFT - This key has a left arrow on it and is located on the right side of the keyboard. When this key is depressed, the cursor on the alphanumeric screen moves one position to the left. This key is used in conjunction with the other cursor positioning keys to move the cursor to a location where an update is to be made.

RCM	
<u>PART PORTION SELECTION TO ACCESS FOR INSPECTION/EDIT</u>	
A	Intensity "EDIT RCM PART A" on Graphic Tablet.
	Max Top "EDIT RCM PART A" on Graphic Tablet followed by "EDIT MAXTOP" on the Graphic Screen Menu.
	Centroids "EDIT RCM PART A" on Graphic Tablet followed by "EDIT CENTROIDS" on the Graphic Screen Menu.
B	VAD Winds (G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(E)DIT,(B) or G,R,E,B for short, on the Alphanumeric Terminal.
C	TVS/MESO "EDIT RCM PART C" on the Graphic Tablet.
	Centroids "EDIT RCM PART C" on the Graphic Tablet followed by "EDIT CENTROIDS" on the Graphic Screen Menu.
	Precip. "EDIT RCM PART C" on the Graphic Tablet followed by Type/Trend "EDIT PCTR" on the Graphic Screen Menu.
	LEWP thru "EDIT RCM PART C" on the Graphic Tablet followed by MLTLVL "EDIT LEWP ETC." on the Graphic Screen Menu.
	Hurric./ (G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(E)DIT,(C) Trop.Storm or G,R,E,C for short on the Alphanumeric Terminal. Move cursor to position following /EYE and /CNTR to edit.
	Remarks (G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(E)DIT,(C) or G,R,E,C for short, on the Alphanumeric Terminal. Move cursor down to position following /REM: to edit.
	Editors (G)EN AND DISTRIBUTE PRODUCTS,(R)CM,(E)DIT,(C) Initials or G,R,E,C for short, on the Alphanumeric Terminal. Move cursor down to position following /EDITED: to edit.
NOTES: Any Graphic Screen Menu can be directly accessed from any other within the same part (A or C).	
The Intermediate Graphic Product will be displayed along with each Graphic Screen Menu.	

Figure 12-3. Access of RCM Portions to Edit

Graphic Screen Common Menu Selections:

- | | |
|------------------------------|---|
| 1) SAVE CHANGE - | This applies to the current portion (menu) being edited. It will save all completed edit data to the disk. It is useful during a lengthy edit so that CANCEL CHANGE may be used to get rid of mistakes made since the last SAVE CHANGE. |
| 2) CANCEL CHANGE - | This applies to the current portion (menu) being edited. It will cancel all edits made since the last save to the disk. It will automatically redisplay the version that was last saved to the disk and remain in edit mode. |
| 3) CANCEL ALL - | This function must be picked twice in succession to work. The first selection will display a warning message so that it is not executed inadvertently. This will quite literally cancel ALL edits made to his RCM product including those previously saved to the disk. Only the original is accessible following this. This applies to the entire RCM product. This will automatically redisplay the original version of the selected portion and remain in edit mode. |
| 4) END/SAVE
PART A or C - | This will save the edits performed on this part (except those previously canceled), exit the RCM edit mode, and clear the graphic screen menus. This should be selected prior to editing on the alphanumeric screen, even if it is for the same part, i.e., C. If it is desired to exit edit but not save the data to disk, select one of the cancel selections first. |
| 5) DISPLAY ORIGINAL - | This will first save completed edited data to disk, then display the original pre-edited version for review only; it cannot be edited in this case. To return to the edited version, select RESUME EDITING. The only menu functions which are active immediately subsequent to this selection are those on the bottom except SAVE CHANGE and CANCEL CHANGE. |

Figure 12-4. Common RCM Edit Selections
(Sheet 1 of 2)

Graphic Screen Common Menu Selections (Continued):

- 6) RESUME EDITING - This is only active immediately subsequent to the selection of DISPLAY ORIGINAL. This will redisplay the version which was saved to disk when DISPLAY ORIGINAL was selected and reenable all the edit menu selections.
- 7) EDIT... These list the other portions of the same RCM part for editing. If any completed edits have been made (and not canceled) to the current portion, they will be saved to disk prior to exit of this portion. The newly selected menu and the data portion of the RCM which goes with it will be displayed available for editing.

Alphanumeric Screen Common Edit Commands:

- 1) (M)ODIFY - Enter this command to begin editing. This is not a subcommand as a new command language is now in effect. This will move the cursor down to the first field and enable editing. What is on the display will be the last saved version (with F1 or F2 of the data) if it has been edited previously, or, the template only (plus header if applicable) if not.
- 2) (C)ANCEL CURRENT - Enter this command to start over with the original version of this portion only. This will not affect changes made on other menus or edit screens already saved to the disk. Edits of this portion which were previously saved will also be canceled. If it is desired to cancel edits just made and go back to those saved last, then select F3 (CANCEL ALPHANUMERIC SELECTION).

Figure 12-5. Common RCM Edit Selections
(Sheet 2 of 2)

RCM Part A. Intensity (Menu 1) Graphic Screen)

07/27/88 13:17

Editable parts: gggiii...i -----+ - Locations ggg are editable by adding/deleting areas on the Intermediate Graphic Product using the menu and the cursor over the graphic product. - Intensities iii are editable by making color level selections on the product color bar immediately following the selection of the location's (ggg's) area.						
Select "START..." to begin edit.						
P m of n	<-- Page Number of Alphanumerics (above) displayed here (n = 0 to 8).					
START POLYGON	<-- Select followed by the selection of a polygon, up to 20 sides, to enclose an area. Only those boxes completely within the polygon area are included.					
END POLYGON	<-- Select to end the polygon defined area and join the first and last points automatically. Select the color level, following this, to change the colors.					
START BOX	<-- Select to select individual boxes of the LFM grid to define an area.					
END BOX	<-- Select to end the selection of individual boxes. Select the color level, following this, to change the color of the area.					
DELETE LINE/B OX	<-- Select to delete the last selected line segment of a polygon or single box, when selecting boxes, if an error was made. (only good for one)					
Use to page thru the up to 8 page long intensity alphanumerics at the top of the screen. All paging is manual. None is performed automatically. The page number is displayed above.						
PAGE FWD						
PAGE BACK						
RCM PART A EDIT INTENSITY	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT INTENSITY	EDIT CENTROIDS	
EDIT GRAPHIC PRODUCT	CANCEL CHANGE	END/SAVE PART A	RESUME EDITING	EDIT MAX TOP		

Figure 12-5. RCM Part A, Intensity (Menu 1) Graphic Screen (Sheet 1 of 9)

RCM Part A, Max. Top (Menu 2) Graphic Screen

07/27/8813:19

<div>Editable parts: /MT<hh;ggg </hh;ggg -----+ - /MT's may be added or deleted using menu (up to 10) they always start on a new line. - Heights (hhh) added or modified using menu (HEIGHT) than numerics. - Locations (ggg) added or modified by menu (SELECT LOC) followed by LFM grid box in graphic display area.</div>			
Select /MT with cursor to begin edit.			
	<-- Preview Area for height entry.		
HEIGHT IN HNDS OF FEET	<-- Select to add or modify a height. Follow with 3 numerics and ENTER.		
SELECT LOC	<-- Select to add or modify an LFM grid box ID. Precede this with the selection of the grid box location.		
1 2 3 4 5 6 7 8 9 0	<-- Numerics to define height.		
ENTER	<-- Select following the entry of the 3 height numerics. To cancel reselect "HEIGHT--".		
ADD MAX TOP	<-- Select to add a new Max. Top. Puts a new /MT on the first blank line and highlights it for editing.		
DELETE MAX TOP	<-- Deletes the highlighted /MT... from the product.		
RCM PART A EDIT MAX TOP	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL
SELECT /MT TO START EDIT	CANCEL CHANGE	END/SAVE PART A	RESUME EDITING
		EDIT INTENSITY	EDIT CENTROIDS
		EDIT MAX TOP	

EDIT RCM PART A
A/R (RDA) 0 DEG
0 KM
QUEUE EMPTY

HARDCOPY

HARDCOPY REQUEST
ACCEPTED

Figure 12-5. RCM Part A, Intensity (Menu 1) Graphic Screen
(Sheet 2 of 9)

RCM Part A, Centroids (Menu 3) Graphic Screen

07/27/88 13:28

Editable Parts: Ccggg dddfff						<div>- Centroids may be deleted or edited (Each C defines a Centroid). Select the centroid field prior to deletion or edit.</div> <div>- Storm ID (cc). Select STORM ID, then enter its alphanumericics followed by ENTER.</div> <div>- Location (ggg). Select the LFM grid box (product area). Then SELECT LOC</div> <div>- Direction (ddd). Select SELECT DIRCTN, then enter 3 digits, followed by ENTER.</div> <div>- Speed (fff). Select SELECT SPEED followed by 2 digits, followed by ENTER.</div>					
Select the Centroid Field to edit, with the cursor to begin.											
STORM ID		<-- Preview Area for STORM ID, DIRCTN or SPEED.									
SELECT LOC		<-- Select to enter or modify a centroid's Storm ID. (Select location on graphic display area prior to selecting this function.)									
SELECT DIRCTN		<-- Select to enter or modify a centroid's direction in degrees.									
SELECT SPEED		<-- Select to enter or modify a centroid's speed.									
1 2 3 4 5 6 7 8 9 0 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		<-- Alphanumerics for the entry of STORM ID, DIRCTN or SPEED.									
ENTER		<-- Select following the entry of the alphanumeric characters to move the entry from the Preview Area into the product field. To cancel, reselect the field, e.g., STORM ID.								EDIT RCM PART A A/R (RDA) 0 DEG 0 KM QUEUE EMPTY	
DELETE CENTRO ID		<--Select to delete the entire field for the highlighted centroid. Note that only one centroid at a time may be deleted.								HARDCOPY	
RCM PART A EDIT CENTROIDS		SAVE CHANGE		CANCEL ALL		DISPLAY ORIGINAL		EDIT INTENSITY		EDIT CENTROIDS	
SELECT C(CENTROID) ID TO START EDIT		CANCEL CHANGE		END/SAVE PART A		RESUME EDITING		EDIT MAX TOP			

EDIT RCM PART A

A/R (RDA) 0 DEG
0 KM

QUEUE EMPTY

HARDCOPY

Figure 12-5. Screen Specific RCM Editing Instructions
(Sheet 3 of 9)

RCM Part B VAD Winds (Edit Screen 1) Alphanumeric Screen

```
RCM PART B (13:30 12/28/88) EDIT SCREEN Page 1 of 1
COMMAND: _
FEEDBACK: EXECUTED - G,R,E,B

(M)ODIFY (C)ANCEL CURRENT EDIT [Redisplay original]

Press function key F1 or F2 to exit and to save all changed. Press return to allow com-
mand entries.

Fields to Edit (manually):
VADNA in header line (Add if all VAD wind fields deleted, or delete if VAD
wind fields added).
VAD wind fields: Height (hhh)
                  Confidence (C)
                  Direction (ddd)
                  Wind Speed (fff)

See Figure 12.1.1-2, sheet 4, for more information on VAD Winds.
See Section 12.1.2.3.1.1 for instructions on alphanumeric editing.
```

Figure 12-5. Screen Specific RCM Editing Instructions
(Sheet 4 of 9)

RCM Part C, TVS/Meso (Menu 4) Graphic Screen

Editable Parts: TV/Sttggg Mmmggg ----- - Select the field to be edited/deleted with the cursor. - Use "ADD---" to add a field to the next blank space. - TVS/Meso ID (tt or mm). Select TVS/Meso ID followed by the numerics of the ID number followed by ENTER. - Location (ggg). Select LFM grid box location selection on graphic display area, then SELECT LOC.		07/27/88 13:30	
Select the field to be edited, with the cursor, or select "ADD---".			
	<-- Preview Area for TVS/Meso ID		
TVS/ MESO ID	<-- Select to enter or modify a TVS's or Meso's ID. This is not the storm ID, usually, but is a numeric only designation.		
SELECT LOC	<-- Select to enter or modify a TVS's or Meso's LFM grid box ID. (Select the location on the graphic display area prior to the selection of this function.)		
1 2 3 4 5 6 7 8 9 0	<-- Numerics for entry of 12 digit TVS or Meso ID number.		
ENTER	<-- Select following entry of 2 digit TVS or Meso ID number to move from Preview Area into the product field.		
ADD TVS		EDIT RCM PART C A/R (RDA) 0 DEG 0 KM QUEUE EMPTY	
ADD MESO			
DELETE TVS/ME SO		HARDCOPY	
	<-- Select to delete the highlighted TVS or Meso field.		
RCM PART C EDIT TVS/MESO	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL
SELECT TVS OR M TO START EDIT	CANCEL CHANGE	END/SAVE PART C	RESUME EDITING
		EDIT TVS/MESO	EDIT PCTR
		EDIT CENTROIDS	EDIT LEWP ETC.
			HARDCOPY REQUEST ACCEPTED

Figure 12- 5. Screen Specific RCM Editing Instructions
(Sheet 5 of 9)

RCM Part C, Centroids (Menu 5) Graphic Screen

07/27/88 13:32

Editable Parts: Ccggg ShhhHi	<ul style="list-style-type: none"> - Select the Centroid field for edit or deletion. - Storm ID (cc). Select Storm ID followed by variable length alphanumerics followed by ENTER. - Location (ggg). Select LFM grid box location on the graphic display area, then SLCT LOC. - Height (hhh). Select HEIGHT IN HNDS OF FEET followed by three digits and ENTER. - Hail Indicator (i). Select from the menu choices after HAIL: 				
	<-- Preview Area from Storm ID or Height in hundreds of feet.				
STORM ID	<-- Select to enter or modify a Centroid's Storm ID.				
SELECT LOC	<-- Select to enter or modify a Centroid's LFM Grid Box ID. (Select the location on graphic product display area prior to the selection of this function.)				
HEIGHT IN HNDS OF FEET	<-- Select to enter or modify a Centroid's height above MSL.				
HAIL N NONE P PBL H HAIL U UNKN	<-- Select one for a new Hail Indicator.				
1 2 3 4 5 6 7 8 9 0 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	<-- Alphanumerics for entry of Storm ID or Height.				
ENTER	<-- Select to move selected alphanumerics from Preview Area to product.				
DELETE CENTRO ID	<-- Select to delete the highlighted centroid field. Note that only one centroid at a time may be deleted.				
RCM PART A EDIT CENTROIDS	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT TVS/MESO	HARDCOPY REQUEST ACCEPTED
SELECT C (CENTROID) ID TO START EDIT	CANCEL CHANGE	END/SAC PART A	RESUME EDITING	EDIT CENTROIDS	EDIT PCTR EDIT LEWP ETC.

 EDIT RCM PART C
 A/R (RDA) 0 DEG
 0 KM
 QUEUE EMPTY

HARDCOPY

 Figure 12-5. Screen Specific RCM Editing Instructions
 (Sheet 6 of 9)

RCM Part C, Precip Type/Trend (Menu 6) Graphic Screen

07/27/88 13:34

Editable Parts: /PCTRyyy.aaa:gg,gg... ----- - Precip. Type (yyy). Select Precip. type from 10 menu choices, then TSTRM PREFIX T (optional). - Trend (aaa). Select from 4 menu choices. - Location (gg's). Define area(s) using START--,END-- menu choices and LFM box selections as in Part A Intensities.					
Select single/PCTR Template to add its parts. Select ADD PCTR for more.					
	<-- Not used on this menu.				
TSTRM PREFIX T	<-- Select to add thunderstorm prefix T to precip. type field. (Select precip. type first.)				
PR TYPE: R RW S SW ZR ZRW IP IPW L ZL	<-- 10 choices (pick one) for precip. type.				
TREND: + - NC NEWS	<-- 4 choices (pick one) for trend.				
START POLYGON	-				
END POLYGON	- Location definition selections. Works like Part A Intensities, except the 1/4 LFM grid boxes only apply here, so there is a coarser resolution.				
START BOX	-				
END BOX	-				
DELETE LINE/B OX	-				
ADD PCTR	<-- Select to add a new /PCTR template on the first blank line.				
DELETE PCTR	<-- Select to delete the highlighted /PCTR field.				
RCM PART C EDIT PRECIP TYPE/TREND	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT TVS/MESO	EDIT PCTR
SELECT /PCTR TO START EDIT	CANCEL CHANGE	END/SAVE PART C	RESUME EDITING	EDIT CENTROIDS	EDIT LEWP ETC.

EDIT RCM PART C
A/R (RDA) 0 DEG
0 KM
QUEUE EMPTY

HARDCOPY

HARDCOPY REQUEST
ACCEPTED

Figure 12-5 Screen Specific RCM Editing Instructions
(Sheet 7 of 9)

RCM Part C, LEWP thru MLTVL (Menu 7) Graphic Screen

07/27/88 13:36

Editable Parts: /LEWP:gg:gg... /BASEhhh:gg:gg... /MALFhhh:gg:gg... /PALFhhh:gg:gg... /MLTLVlhhh ----- Select one of the templates to define it.		<ul style="list-style-type: none">- Locations (gg's) and Heights in hundreds of feet (hhh) must all be added/reedited since this starts out with templates only.- For LEWP: use START LEWP, pick your points in the product area, then use END LEWP.- For BASE, MALF and PALF: Select HEIGHT --- enter 3 digit height, select ENTER, then define the area.- For MLTLVL, just define the height as for BASE.			
	<-- Preview Area for height (3 digits)				
START LEWP	<-- Select to define a Line Echo Wave Pattern (up to 2 may be defined).				
END LEWP	<-- Select to end a Line Echo Wave Pattern definition.				
HEIGHT IN HNDS OF FEET	<-- Select to begin the definition of a height field.	Location definition selections. Works like Part C Precip.Type/Trend.			
START POLYGON					
END POLYGON					
START BOX					
END BOX					
DELETE LINE/BOX					
1 2 3 4 5 6 7 8 9 0	<-- Numerics for 3 digit definition of height field.				
ENTER	<-- Select to move the 3 height digits from the Preview Area into the product field.				
RCM PART C EDIT LEWP ETC.	SAVE CHANGE	CANCEL ALL	DISPLAY ORIGINAL	EDIT TVS/MESO	EDIT PCTR
SELECT TEMPLATE TO EDIT	CANCEL CHANGE	END/SAVE PART C	RESUME EDITING	EDIT CENTROIDS	EDIT LEWP ETC.

EDIT RCM PART C
A/R (RDA) 0 DEG
0 KM
QUEUE EMPTY

HARDCOPY
HARDCOPY REQUEST
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Figure 12-5 Screen Specific RCM Editing Instructions
(Sheet 8 of 9)

RCM Part C Remarks Editors Initials (Edit Screen 2) Alphanumeric Screen

RCM PART C (13:30 12/28/88) EDIT SCREEN		Page 1 of 1
COMMAND: _		
FEEDBACK:EXECUTED - G,R,E,C		
(M)ODIFY (C)ANCEL CURRENT EDIT [Redisplay original].		
Press function key F1 or F2 to exit and to save all changes. Press return to allow command entries.		
/EYE	Editable parts:- Hurricane or Trop. Storm eye and center information	
/CNTR	(optional) (See Figure 12.1.1-2)	
/REM:	- Optional Remarks (after /REM:)	
	- Editor's initials (required) (after /EDITED:)	
NOTES: - TAB down to field to enter information and type it in.		
- HOME will move cursor right to the place to enter editor's initials (after /EDITED:)		
- Go back to (G)EN AND DISTRIBUTE PRODUCTS MENU to send the RCM back to the RPG.		
/EDITED:		
/ENDCC		
/ENDALL		

Figure 12-5 Screen Specific RCM Editing Instructions
(Sheet 9 of 9)

- d. CURSOR RIGHT - This key has a right arrow on it and is located on the right side of the keyboard. When this key is depressed, the cursor on the alphanumeric screen moves one position to the right. This key is used in conjunction with the other cursor positioning keys to move the cursor to a location where an update is to be made.
- e. RETURN - When this key is depressed while alphanumeric editing is in progress, the cursor moves to command line. If the cursor is located anywhere above the first or below the last line of the product display area, depressing RETURN will move the cursor to the command line.
- f. SPACE BAR - When this bar is depressed, a blank is written at the present cursor location on the alphanumeric screen. This action will replace the character previously displayed at that location.
- g. ANY DISPLAYABLE CHARACTER ON THE KEYBOARD - These characters include the letters of the alphabet, the numbers zero through nine, and all other displayable characters on the keyboard including punctuation, etc. As with the space bar, the depressed character replaces the character (or blank space) previously displayed at that location.
- h. INSERT LINE/CHAR - This key is located on the right side of the keyboard. When this key is depressed in conjunction with the SHIFT key (INSERT LINE), a blank line is inserted at the current cursor position and all the product data on and below the selected line is moved down one line. If there is data on the bottom line of the product display area and this key is depressed (together with the SHIFT key), then the terminal status line on the bottom of the alphanumeric screen will contain the message INPUT ER and the line will not be inserted.

When this key is depressed without the SHIFT key (INSERT CHAR), any subsequent characters entered (until this key is reselected) will be inserted at the current cursor position. All characters from the selected character to the right and below will move one position for each character inserted. Nothing will happen until the subsequent characters are selected. Characters in the last column of each line wrap around to the first column of the next line. Character insertion with subsequently selected characters will continue until this key is depressed a second time. If, while inserting, the product display area becomes full, then the INPUT ER message will appear on the terminal status line and the insertion does not occur.

- i. ERASE LINE/PAGE - This key is located on the right side of the keyboard. When this key is depressed, all data in the product display area from and including the current cursor position to the end of this page is set to blanks. Shifting has no effect on this key.
- j. DELETE LINE/CHAR - This key is located on the right side of the keyboard. When this key is depressed in conjunction with the SHIFT key (DELETE LINE), the line at the current cursor position is deleted and all the product data below the deleted line is moved up one line. The new bottom line is filled with blanks.

When this key is depressed without shifting (DELETE CHAR), the character at the current cursor position is deleted and the rest of the product data to the right and below is moved to the left one position.

- k. PAGE EDIT/INSERT MODE - This key is located on the right side of the keyboard. When this key is depressed in conjunction with the SHIFT key (PAGE EDIT), a blank is inserted at the current cursor position. This action is similar to INSERT CHAR described above, except that a blank is inserted and the cursor does not move, thus allowing the user to enter any desired character at the insert location.

When this key is depressed without shifting (INSERT MODE), a blank is inserted at the current cursor position and all characters to the right are shifted one position to the end of the line. If the line is full when an insert is attempted, then the INPUT ER message is displayed on the terminal status line.

- l. NEW LINE - This key is located on the right side of the keyboard. When this key is depressed, the cursor moves to the first position of the next line. Using this key moves the cursor faster than using the RETURN key.
- m. TAB - This key is located on the left side of the keyboard. When this key is depressed, the cursor will tab through all edit fields for RCM Part C. For RCM Part B, when the tab key is depressed, the cursor will tab to the end of the edit field.
- n. HOME - This key is located among the arrow keys on the right side of the keyboard. When this key is depressed, the cursor will be located at the first position of the edit field for RCM Part B. For RCM Part C, when the home key is depressed, the cursor will be located at the /EDITED: field for entry of the editor's initials.

12-1.2.3.2 Return RCM to RPG.

The command to return the edited RCM to the RPG is the

(G)EN AND DISTRIBUTE PRODUCTS,(S)END,(R)CM

command on the alphanumeric terminal or

G,S,R for short.

The only part of the RCM, which must be edited prior to returning it to the RPG is the entry of the editors initials following /EDITED: on the Part C Edit Screen on the alphanumeric terminal. Sending the RCM will be disallowed if an entry has not been made into that field.

An RCM can be sent to the RPG only after editing and prior to the expiration of the time to send it. See paragraph [12-1.2.1 RCM Edit Timing and Warning Messages](#). for information about the case where a second RCM arrives prior to the sending of a previous one when the expiration time of the first RCM has not yet elapsed.

12-1.3 Receipt/Request of RCM Product (Pre-Edit Version).

The PUP specified for RCM editing normally does not request the pre-edit RCM product, either on the RPS list or via one-time request, but is sent the RCM automatically from the RPG on a high priority transmission.

There is no way to put a pre-edit RCM onto an RPS list since placing RCM onto that list will always refer to the post-edit RCM.

It is possible, however, for the RCM editing PUP to make a one-time request for a pre-edit RCM (as well as for a post-edit RCM). Editing and return of the one-time requested RCM works the same way as described for any pre-edit RCM.

One-Time Request for Pre-edit RCM

The "RCM" in the product area of the graphic tablet refers to the pre-edit version (even if it has been edited) which consists of the intermediate graphic product as well as the normal alphanumeric-only RCM (pre-edit version). If selection is made on the graphic tablet for "RCM", the parameter select mode is entered, and the request is forwarded to the RPG, this will be a one-time request for the pre-edit RCM. The selection of "RCM" on the graphic tablet of a PUP not designated for RCM editing will be disallowed.

Even if RCM editing is allowed at the PUP, the RPG will only honor the one-time request if the RPGs adaptation data specifies that PUP for RCM editing as well.

The post-edit RCM may be requested (as any alphanumeric product by any PUP) both on the RPS list as "RCM" and as a one-time request as "RCM" on the Display Menu.

Section 12-2: Generation/Distribution of Free Text Messages

Any PUP or RPG OP can generate Free Text Messages (FTM) and distribute them to PUES and Other Users. Only RPG OPs can distribute messages to the RPG. The PUP/RPG OP flag is in adaptation data. While the message is being generated, it is called a PUP Text Message (PTM). This generated PTM is known as a Free Text Message by the RPG after it is distributed. When messages are received from an RPG, they are considered Free Text Messages.

The subsections below explain how messages are generated and distributed. All commands given here are always active in normal command mode.

12-2.1 Generating a Message.

To generate a PUP Text Message, type (G)EN AND DISTRIBUTE PRODUCTS, (G)ENERATE MESSAGE on the alphanumeric command line. This command will blank the product display area and enable generation of a PTM. The cursor will be positioned at the first character of the first line for text entry. Eighty columns and 17 lines per page are available, two pages maximum, for text entry. PTMs are generated in the same way that Radar Coded Messages are edited. For a comprehensive description of the editing procedure, refer to paragraph 12-1.2.3.1.1 Alphanumeric Edit Screen Edit Procedure..

12-2.1.1 Canceling a Message.

When function key F3, CANCEL ALPHANUMERIC SELECTION, is depressed while a PTM is being generated, the PTM, while still displayed, can no longer be edited, saved, or redisplayed. Edit mode is exited and the cursor is returned to the command line for normal command entry. A feedback message is displayed indicating the edit has been canceled.

12-2.1.2 Saving a Message.

A generated PTM can be saved by depressing either function key F1, RETURN TO MAIN MENU, or function key F2, RETURN TO PREVIOUS MENU while a PTM is being generated. Feedback is provided indicating the edited PTM is saved and the cursor is returned to the command line for normal command entry.

12-2.2 Distributing a Message to the RPG.

Only RPGOPs are allowed to distribute a message to the RPG. If a PUP attempts to distribute a message to the RPG, a feedback message is displayed indicating function not valid at a PUP.

Before distributing a message to the RPG, the RPG communications line number of the intended message receiver must be entered into the command.

To distribute a generated message to the RPG, type:

(G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG,(R)PG,<time>,<date>,<LINE#>
-or-

If the RPG is to distribute the message to all its dedicated line users at once.

(G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG,(R)PG,<time>,<date>,(A)LL

The <time> and <date> parameters specify the generation time and date of the PTM to distribute, and <LINE#> specifies the RPG communication line number over which to send the message.

If the latest generated PTM is to be distributed, omit the <time> and <date> parameters while including the commas. This will default the time and date of the PTM so that the latest one generated is distributed.

If, when attempting to distribute a message to the RPG, the specified PTM does not exist, a feedback message is displayed indicating this.

The Free Text Message is not displayed at the Unit Control Position, but is available for display at any associated PUP.

12-2.3 Distributing a Message to PUES.

To distribute a generated message to PUES, type the following command on the alphanumeric command line: (G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG,(P)UES,<time>,<date> where <time> and <date> specify the generation time and date of the PUP Text Message (PTM) to be distributed. The generation time and date of all current PTMs (whose product ID number is 77) may be obtained by typing (S)TATUS,(P)RODUCTS IN PUP DATABASE,77 on the alphanumeric command line. If the latest generated PTM is to be distributed to PUES, then type (G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG,(P)UES; on the command line. This will default the time and date of the PTM so that the latest one generated is distributed.

If, when attempting to distribute a message to PUES, the specified PTM does not exist, a feedback message is displayed indicating the product is not in the data base.

12-2.4 Enabling/Disabling Other Users for Message Distribution.

Other Users may have up to three PUP Text Messages enabled for distribution. When enabled, they will automatically be sent to a connected Other User along with other specified products in the Routine Product Set List. If more than three messages are enabled for distribution, only the last three are sent. Section 12.2.4.1 describes the enabling of messages for Other User distribution.

12-2.4.1 Enabling Other Users for Message Distribution.

To enable the distribution of a generated PTM to Other Users, type (G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG,(E)NABLE OTH USR,<time>,<date> on the alphanumeric command line, where <time> and <date> specify the generation time and date of the PTM to enable for distribution. If the latest generated PTM is to be enabled for distribution, type (G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG,(E)NABLE OTH USR; on the command line. This will default the time and date of the PTM so that the latest one generated is enabled for distribution.

If, when attempting to enable Other Users for message distribution, the specified PTM does not exist, a feedback message is displayed indicating the product is not in the data base.

12-2.4.2 Disabling Other Users for Message Distribution.

To disable Other Users for message distribution, type (G)EN AND DISTRIBUTE PRODUCTS,(D)IST MSG, (D)ISABLE OTH USR on the alphanumeric command line. The purpose of this command is to stop sending enabled messages to Other Users who dial in. Message may subsequently be reenabled for distribution.

Section 12-3: Edit/Send Product Annotations (Graphic)

Product annotations for graphic products are overlays. These annotations can be selected for display by default whenever the annotated product is displayed using the Overlay Associations edit screen. A PUP or RPG OP can annotate any graphic product. Only an RPG OP can send a product's annotation to the RPG. When an annotation is generated for a particular product, the annotations are associated with only that one specific version of the product. After generation via the graphic screen, a graphic product's annotation can be distributed to the RPG by using an alphanumeric terminal command (see [Section 12-3.2 Sending Product Annotations.](#)) listed on the Gen and Distribute Products menu. Once the annotations are sent to the RPG, the RPG may distribute the annotated product to the PUPs, the PUES, and the Other Users on its distribution list.

12-3.1 Editing (Generate) Product Annotations (Graphic).

To generate or edit a graphic product's annotations, select the product to be annotated on either the left or right screen in either full or quarter screen mode. If recentering or magnification is desired, then perform the recenter/magnification before selecting EDIT ANNOT. Once the product to be annotated is displayed as desired, select the EDIT ANNOT function located on the upper left corner of the graphic tablet. This action initiates edit mode for product annotation. While in this mode, it is illegal to change the center or magnification of the product. The graphic screen not used for editing may be used for anything but time lapse or editing. Any attempt at an illegal function while editing will cause a feedback message to be displayed.

The editing of the product annotations is performed by using the graphic editing commands, the graphic keyboard area, and the graphic special symbols, all of which are located on the upper part of the graphic tablet. The following subsections describe how these parts of the graphic tablet are used and how text, special symbols, and lines are added and deleted.

12-3.1.1 Adding Text or Special Symbols.

To add text or special symbols while in edit mode, select the cursor location on the product annotation area where the text or special symbols are to begin. Then, select either a text character from the graphic keyboard (described below in paragraph [12-3.1.2 Graphic Keyboard Usage While Editing.](#)) or a special symbol from the graphic symbol area (described below in paragraph [12-3.1.3 Graphic Symbols \(Special Symbols\).](#)). The selected text character or special symbol appears at the selected location on the graphic screen. Each subsequent text character or special symbol selected will appear to the right of the previous one. Text characters and special symbols should not be mixed in the same text string unless the special procedure, described below, is used. BACK SPACE will cause the right-most character or special symbol to change color indicating it is deleted and, if another character or special symbol is selected, it takes the place of the deleted one. Selecting BACK SPACE when there are no characters or special symbols in a string is illegal. Text or special symbols may be added to the current string until either a new cursor location is selected or another edit function is started. Added text or special symbols always appear in white on the screen when annotating a product, or the same color as the background map when being added to a map.

Because text and special symbols are different character fonts within the graphic subsystem, it assigns different geographic locations to the beginning of text strings and special symbol strings even if the operator enters them as one continuous string. This means that if the product annotation or background map is displayed at a different magnification from the one with which it was entered, the text and special symbol strings will move independently so that the geographic location of the upper left corner of the first character in each string type is the same as on the magnification where the string was created.

12-3.1.1.1 Combining Text and Special Symbols Into a Unified String.

A single special symbol string and a single text string may be combined into one unified string which moves together at various magnifications. This is done by defining each string separately, starting at

the exact same geographic point, each having space characters (or no characters) where the other string has visible characters. For special symbol strings, the special symbol space (normally lower left special symbol box) must be used. The only practical way to get each string to start at exactly the same position is to use the "Cursor Home Define" function on the graphic tablet to define the start location (upper left corner of the first character) of both text strings. Use the "Cursor Home" function to position the cursor prior to character selection for each string.

EXAMPLE: To combine a symbol of a city (special character) with the name of the city (text string) into a unified text string on the "City" background map:

- a. While in "Edit Map" mode for the "City" Map, position the cursor for the unified text string start and depress the correct puck button.
- b. Select "Cursor Home Define" on the graphic tablet.
- c. Select "Cursor Home" and select the "City" symbol.
- d. Select "Cursor Home" again and enter a space character (keyboard area of the tablet) followed by the text string for the city name. If it is desired to have a space between the symbol and the text, then enter an additional space after the first.

When displayed, the "City" symbol will always appear where the first space character of the text string was entered.

12-3.1.2 Graphic Keyboard Usage While Editing.

The graphic keyboard area of the graphic tablet is used to enter text while editing. All characters on this keyboard area except for RET (which is not used in edit mode) may be selected in edit mode. To access shifted characters, depress the UPPER SHIFT function key before choosing desired characters. The LOWER SHIFT function key should be used to reaccess non-shifted characters.

12-3.1.3 Graphic Symbols (Special Symbols).

There are 64 adaptation data definable special graphic symbols which can be used for product annotation and background map editing. These special symbols are located on the upper part of the graphic tablet to the right of the graphic keyboard. Using the UPPER SHIFT on the graphic keyboard accesses the symbols 33 through 64. Conversely, LOWER SHIFT accesses the symbols 1 through 32.

12-3.1.4 Adding Lines.

To add a line while in edit mode, select the START LINE function located on the upper left part of the graphic tablet. Once this is selected the only functions that can be selected are END LINE, CANCEL EDIT, EXIT EDIT & SAVE, and CANCEL HELP. A line is drawn on the graphic screen by selecting its starting and ending points via the screen tracking area of the graphic tablet. Select the desired starting location of the line, and a point will appear at that location on the graphic screen. Select the ending location of the line and the straight line will appear. If another location is now selected, then another line will appear, whose starting point is the previous line's ending point and the ending point is at the location selected. These linked lines may be drawn by subsequent point selection. If either END LINE is selected, or the edit is either canceled or saved, then the linking of lines is discontinued. If END LINE is selected, then the following functions are legal: adding text and special symbols, adding lines, deleting text special symbols and lines, canceling edit, and saving edit. Added lines appear in white when annotating a product or, the same color as the rest of the map when editing a background map.

12-3.1.5 Deleting Text, Special Symbols, and Lines.

The entities that can be deleted while in edit mode are text, special symbols, and lines. Deletion takes place by getting into delete mode and selecting the entity to be deleted via the graphic tablet.

To get into delete mode, select the START ERASE function located on the upper left part of the graphic tablet. Once this is selected, only the END ERASE, CANCEL EDIT, EXIT EDIT & SAVE, and CANCEL/HELP functions are legal. An entity is then deleted by simply placing the cursor position somewhere on it. The deleted entity changes color to red for product annotations or gray for background maps. Product annotations all appear as white so changing them to red to indicate deletion allows the operator to easily differentiate what has been deleted. The reason gray (this is a medium to dark gray) was chosen to indicate deleted background map entities was to pick the least likely color that the original map might be displayed in (the colors are defined in adaptation data) and yet still be able to see it and differentiate it from the non-deleted map portions. If a straight line and either text or special symbols appear together at the location selected for deletion, only one will be deleted at a time. If a string containing only text or only special symbols is selected for deletion, then the entire string is deleted.

To get out of delete mode, select the END ERASE function located to the right of START ERASE. Once END ERASE is selected, the following functions are legal: adding text and special symbols; adding lines; deleting text, special symbols, and lines; canceling edit; and saving edit.

12-3.1.6 Canceling Edit.

To cancel the edit without modifying the previous version, select the CANCEL EDIT function on the upper left part of the graphic tablet. A feedback message is displayed directing the user to select CANCEL EDIT a second time to cancel edit mode. When CANCEL EDIT is selected a second time, an edit canceled feedback message is displayed and edit mode is exited.

If it is not selected a second time as the next function, the first selection will be ignored and edit mode will proceed.

12-3.1.7 Saving Edit.

To save the edit, select the EXIT EDIT & SAVE function on the upper left part of the graphic tablet. Feedback is displayed directing the user to select EXIT EDIT & SAVE a second time to save the editing and exit edit mode. When this function is selected a second time, an "edit saved" feedback message is displayed and edit mode is exited. If this function is not selected a second time as the next function, the first selection is ignored and edit mode will proceed still unsaved. Performing either the above technique or canceling must end edit mode.

12-3.2 Sending Product Annotations.

Selection:

Alphanumeric (only): (G)EN AND DISTRIBUTE PRODUCTS,(S)END,
(A)NNOTATIONS, <PROD-NAME>
Enters the "Send Annotations" edit screen at this point to identify the specific product.

Active

Environment: Only available at a RPG OP; otherwise, error message "FUNCTION NOT VALID AT PUP" is displayed as feedback.

Options and

Parameters: The 1 to 3 letter product name mnemonic.

Defaults: None.

Operation: This function sends just the created product annotations, specified by the product parameters on the edit screen, to the associated RPG. The RPG will subsequently

include these annotations with the specified product whenever the exact same product is redistributed.

Notes: If, when trying to send a product's annotations, either the product or its annotations do not exist, then a feedback message is displayed indicating the annotations are not available.

Section 12-4: Edit Background Maps

In order to enable the editing of background maps, the System Option Command <PASS-WORD>,(E)DIT MAPS,(E)NABLE must have been selected previously (since the last PUP restart). Otherwise, the message "EDITING DISABLED" will appear on the feedback line when editing maps is requested. There are two map versions available for any coverage area: the low detail version and the high detail version. The low detail version contains one map piece for the NEXRAD unit coverage area, while the high detail version of the same coverage area contains 16 map pieces. The 16 piece high detail version is divided into a 4 x 4 square (although this is transparent to the operator) even when editing.

There are two versions of both the low and high detail maps: the original (which cannot be altered) and the modified (the latest edited version). The Background Map Version edit screen on the Control menu defines which map versions are used for both editing and displaying background maps. To select which version to use when either editing or displaying a background map, enter: (C)ONTROL, (B)ACKGROUND MAP VERSION on the alphanumeric command line (refer to Section 7.10), then specify either original or modified for any particular background map to be edited or displayed. <PASSWORD>,(E)DIT MAPS,(D)ISABLE can be used to disable map editing.

12.4.1 Editing Background Maps.

All maps on the bottom right part of the graphic tablet which may be selected, may also be edited, except for RDA, Range Ring, and Polar Grid.

To begin editing whichever map version was last specified (see Section 12.4), select the EDIT MAP function located on the upper left part of the graphic tablet. This action activates edit mode and prompts for the background map to be edited. Select the background map from the maps on the bottom right of the graphic tablet. At this point, the low detail version is displayed regardless of subsequent magnification selections. The high detail version may now be selected for editing by selecting the HIGH DETAIL function located to the right of the EDIT MAP function. Prior to selecting this, the desired display center should be selected with the cursor and the low detail map recentered/magnified. Once high detail is selected, only the high detail map can be edited. Whether editing the low or high detail map, at this point the center and magnification of the map may be manipulated as desired until some editing function is selected, after which recentering and magnification will not be possible without leaving and reentering edit mode.

Editing of the displayed background map is performed exactly as products are annotated (see [12-3.1 Editing \(Generate\) Product Annotations \(Graphic\)](#)). For a complete description of the editing functions, refer to the previously described sections:

- [12-3.1.1 Adding Text or Special Symbols.](#)
- [12-3.1.2 Graphic Keyboard Usage While Editing.](#)
- [12-3.1.3 Graphic Symbols \(Special Symbols\).](#)
- [12-3.1.4 Adding Lines.](#)
- [12-3.1.5 Deleting Text, Special Symbols, and Lines.](#)
- [12-3.1.6 Canceling Edit.](#)
- [12-3.1.7 Saving Edit.](#)

There are two ways to precisely position the cursor on a map being edited to place a symbol or character where the latitude and longitude are known. The first is to have a geographic display on the other screen and move the cursor around on it until the correct Lat/Lon appears on the cursor readout (with cursors linked and in manual mode). Then, select the symbol or character on the screen in map edit mode and it will go there. The other way is to type in the coordinate with the Cursor Home Define function on the Adaptation Data menu. Then, select the Cursor Home function on the graphic tablet, and select the symbol or character in edit mode. It will go to that location. Only the first method will

work for line drawing (after the Start Line function).

When an edited background map is saved, it is always saved as the modified version of the map. The previous modified version of the map is lost and the original version is unchanged.

After editing, the edited or original map version (as previously determined by the (C)ONTROL,(B)ACKGROUND MAP VERSION command) will be displayed whenever the map is selected. If the original was just selected for editing, then the modified must now be selected if the edited version is to be displayed.

Section 12-5: Edit Alert Areas and Alert Categories

There are two separate alert areas that are definable by each PUP for the NEXRAD Unit Coverage Area via the graphic tablet and one of the graphic screens. The other graphic screen will operate normally during this procedure. This approximately 920 km (496.7 nmi) diameter coverage area contains a grid of 58 x 58 alert boxes. Each alert box covers a specific 16 km x 16 km (8.6 nm x 8.6 nm) area. The selection (inclusion) of an alert box on the grid indicates that its 16 km x 16 km geographic area is to be included in the alert area. Inclusion of a box is indicated by outlining it on all four sides with a single row of colored pixels, yellow or cyan blue depending on which alert area. The basic alert grid appears in red. The alert boxes can be edited by the operator. Paragraph [12-5.1 Editing Alert Areas](#), describes the method of editing alert areas.

Alert area 1 and 2 are separate overlays displayable with products. When a product is displayed with an alert area overlay, only the included alert boxes are displayed; not the 58 x 58 alert box grid.

Each alert area has its own set of up to 10 alert categories associated with it. These categories describe the types of alerts and the threshold level numbers that trigger alerts. This data is sent to the Associated RPG to define the alert criteria for this particular PUP. Actual threshold levels are set at the RPG and are displayed via the (AD)APTATION DATA, (A)LERT PROCESSING, (T)HRESHOLD VALUES command. The editing of these alert categories is described in [12-5.2 Editing Alert Categories](#).

For a comprehensive description of alert processing, refer to [Section 8-3: Alerts](#).

12-5.1 Editing Alert Areas.

The editing of alert areas is always enabled. To edit an alert area, select the EDIT ALERT AREAS function located on the upper left part of the graphic tablet. The entire product display portion of the screen will clear at this point and enter full screen mode if it was not already in effect. This action activates edit mode. The message "PLEASE DISPLAY ALERT GRID" is displayed as a prompt for selection of the alert area overlay to be edited. Select either ALERT AREA 1 or ALERT AREA 2 located in the overlay area in the middle right part of the graphic tablet. Once the desired alert area is selected, the alert area grid is displayed in red, and the currently defined alert boxes are displayed in yellow for Alert Area 1 and cyan blue for Alert Area 2. At this point, select any background maps to be displayed with the alert grid.

Recenter and magnify as desired before or during editing with the cursor and RECENTER MAGNIFY functions. Editing of the alert area can be performed by adding/deleting alert boxes and alert rectangles. The subsections below describe these methods.

12-5.1.1 Adding Alert Boxes.

To add alert boxes anywhere on the alert grid, select the ADD ALERT BOX function located on the upper left part of the graphic tablet. Then, select the grid square(s) individually where alert boxes are to be added. This is accomplished by placing the cursor within the desired square and depressing the correct screen puck button. When an alert box is newly added, for Alert Area 1, the individual box will be displayed with a yellow color overlay and Alert Area 2, with a cyan blue color overlay. Selection of another alert area edit function will terminate this function.

12-5.1.2 Deleting Alert Boxes.

To delete alert boxes from the alert grid while in edit mode, first select the DELETE ALERT BOX function located on the upper left part of the graphic tablet. Then, select the alert box(es) to be deleted (similar in manner to adding boxes as described above). When an alert box is selected for deletion, its yellow or cyan blue outline is changed back to the black background color and only the red alert grid remains in that area. Selection of another alert area edit function will terminate this function.

12-5.1.3 Adding Alert Rectangles.

To add large contiguous areas to the alert area, use this function. This will add any rectangular area (containing from one to all 3364 alert boxes) merely by selecting the function ADD RCTL followed by two opposite corners of the rectangular area to be added. Selection of the two corners must immediately follow selection of this function. This is accomplished by placing the cursor within the box to be located within the first corner and depressing the puck button for the correct screen. This is followed by a similar selection of the box defining the diagonally opposite corner of the rectangle area. Following selection of the second corner, all boxes within the grid will be outlined to indicate selection. It does not matter whether any boxes within the area were already selected. Any region can be defined by adding and deleting rectangular areas and individual boxes (Sections 12-5.1.1 through 12-5.1.4).

12-5.1.4 Deleting Alert Rectangles.

Just as rectangular areas can be added (see [12-5.1.3 Adding Alert Rectangles.](#)), they can also be deleted. To delete alert boxes inside a rectangle, select the DEL RCTL function located on the upper part of the graphic tablet. Then select a corner grid of the rectangular area to be deleted, followed by selection of the diagonally opposite corner of the rectangle on the grid. All the alert boxes inside this rectangle will now be deleted.

12-5.1.5 Canceling Edit.

Canceling edit when editing an alert area is exactly the same as canceling edit when editing either product annotations or background maps. Refer to paragraph [12-3.1.6 Canceling Edit.](#), for details.

12-5.1.6 Saving Edit.

Saving edit when editing an alert area is exactly the same as saving edit when editing either product annotations or background maps. Refer to paragraph [12-5.1.6 Saving Edit.](#), for details.

After an edited alert area is saved, the alert area data is sent to the associated RPG, which performs all alert generation. If the communication line to the RPG is disconnected, the definition will be sent when it connects.

12-5.2 Editing Alert Categories.

[12-5.1 Editing Alert Areas.](#) describes the method of editing alert areas 1 and 2 anywhere on the NEXRAD Unit Coverage Area. These alert areas are not the only data required by the Associated RPG to generate alerts. The types of alerts and the threshold level numbers that trigger them are also required to perform alert generation. This is done by editing categories via an edit screen on the alphanumeric terminal. See Section 13.1.2, Alert Processing, for a complete description of this editing. The editing of alert areas and of categories are separate operations and may be performed in any combination or order. Whenever either changes, the definition of both will be sent to the RPG.

Chapter 13

Adaptation Data

Adaptation data is data that may be changed from site to site, agency to agency, and/or operator to operator to suit the needs of the current situation. Adaptation data is divided into 27 categories (see Table XI) which are grouped into three classes:

- a. Regular Adaptation Data
- b. Extended Adaptation Data
- c. Protected Adaptation Data.

The adaptation data delivered with the PUP system is generated at the Operational Support Facility (OSF) and is specifically suited for the PUP system. Adaptation data will be periodically updated and new releases sent to the PUP locations. All categories in adaptation data are modifiable at the PUP alphanumeric terminal, with the exception of the alert area definitions (category number 21), and product to color mix pairings for screen colors (category 14). The alert area definitions are modifiable with the graphic tablet. The product to color mix pairings are modifiable by the graphic tablet used in conjunction with the alphanumeric terminal.

Section 13-1: Regular Adaptation Data

Regular adaptation data contains the data categories which are either most frequently changed by the operator, or, would not adversely affect PUP operations if changed. The following subsections describe the categories that the operator may select:

- 13-1.1 Routine Product Set Lists.
- 13-1.2 Alert Processing.
- 13-1.3 Product to Background Map Associations.
- 13-1.4 Product to Overlay Associations.
- 13-1.5 Monitor Performance Update Period.
- 13-1.6 Geographic Cursor Home Location.

Table 13 - 1: Adaptation Data Categories Editing Accessibility

ADAPTATION DATA CATEGORY NUMBER	CATEGORY NAME	ADAPTATION DATA MENU ACCESS		
		REGULAR	EXTENDED MENU	NUMERICALLY EDITED
1	Radar Location			X
2	Edit Radar Coded Message Flag		X	
3	Geographic Cursor Home Location	X		
4	Geographic Preset Center Location			X
5	PUP/RPG OP Flag			X
6	PUP/Associated RPG Identification Num- bers			X
7	Monitor Performance Update Period	X		
8	Task Priorities			X
9	Hardware Implementation			X
10	Narrowband Line Definitions		X	
11	RPG List (Directory)		X	
12	PUES Distribution Product Priorities			X
13	Product to Background Map/Overlay Associations	X		
14	Product to Color Mix Pairings		X	
15	Maps to Color Mix Pairings			X
16	Special Symbol Font Definitions			X
17	Graphic Tablet Selection to Function Assignments			X
18	Overlay Colors			X
19	Routine Product Sets	X		
20	Password		X	
21	Alert Processing	X		
22	Overlay Precedences		X	
23	Preselected RPGs			X
24	Overload Warning Thresholds			X
25	Maps to PUES and Other Users			X
26	RCM Edit Warning Times		X	
27	(Unused)			
28	Other User List		X	
29	SCIT HDA and TVS Parameters		X	

13-1.1 Routine Product Set Lists.

Selection:

Alphanumeric (only): (AD)APTATION DATA,(R)OUTLINE PRODUCT
SETS,<RPS-ID>,(E)DIT
(AD)APTATION DATA,(R)OUTLINE
PRODUCTSETS,<RPS-ID>,(L)EFT DISPLAY RATE,<SECONDS>
(AD)APTATION DATA,(R)OUTLINE PRODUCT
SETS,<RPS-ID>,(R)IGHT DISPLAY
RATE,<SECONDS>
(AD)APTATION DATA,(R)OUTLINE PRODUCT
SETS,<RPS-ID>,(RE)PLACE WITH,<RPS-ID>

Active

Environment: Always active.

Options and

Parameters: Edit the product set or left or right display rate
Routine Product Set ID (A-J).

Defaults: If the semicolon (;) is entered immediately after the RPS-ID parameter, the default option will be (E)DIT.

Operation: Refer to paragraph [4-6.2 Adaptation Data RPS Lists](#). for a complete description of Adaptation Data Routine Product Set Lists. There are 10 Routine Product Set Lists in adaptation data (lettered "A" through "J"). Each list can hold a maximum of 20 products (50 at the RPGOP), a left display rate, and a right display rate. Each list corresponds to a different NEXRAD Unit operational (weather) mode. The RPS-ID parameter is used to determine which Routine Product Set List is to be edited (A-J). List "I" will be invoked when the RPG is in Maintenance Mode. With the left and right display rate options, the user is able to change or view the current left or right display rate. If no rate is placed on the command line (i.e., without entering semicolon) after "LEFT DISPLAY RATE" or "RIGHT DISPLAY RATE," the current display rate will be displayed on the alphanumeric feedback line. If the rate is to be changed, it should be entered (in seconds) on the command line after either the Left Display Rate or Right Display Rate selection. The display rates are used when auto display mode is active (see [Section 4-9: Auto Display, Graphic](#)). These rates act as intervals between products displayed from the current Routine Product Set List.

The last command listed above, AD,R,<RPS-ID>,RE,<RPS-ID>, is used to:

- a. Replace the first RPS-ID list with the second RPS-ID list in adaptation data if A-J is specified.
- b. Replace the first RPS-ID list with the currently active RPS list (not presently in adaptation data) if "R" is specified for the second RPS-ID in the command.

See paragraph [4-6.1.2 Replace Active RPS List](#) to replace the active RPS List with adaptation data.

13-1.2 Alert Processing.

Selection:

Alphanumeric (only): (AD)APTATION DATA,(A)LERT PROCESSING,

<ALERT-AREA>

Enters Alert Processing edit screen at this point.

Active

Environment: Always active.

Options and

Parameters: Alert area number (one or two).

Defaults: None.

Operation: The edit screen allows the user to select, for an alert area, the type of alerts and threshold codes associated with each alert type to be sent to the Associated RPG to define alerting for this PUP. Also included is an indication whether an alert product is to be sent from the RPG when the alert is triggered. There are a maximum of 10 different alert types that can be generated by the RPG for any one alert area at one time. The category codes which identify the possible alert types are listed on the Alert Processing edit screen. (See Appendix A for an example of the Alert Processing edit screen.) Use of the Return key on the edit screen will save the values displayed on the screen. Once the values are saved, the information is sent to the Associated RPG so that the RPG can generate the alerts when the thresholds are exceeded.

Note: Actual threshold values are assigned at the RPG Unit Control Position. These are displayed via the command described in paragraph [13-1.2.1 Alert Threshold Values..](#) Associated with this adaptation data category are the alert area (one and two) grid box definitions. These alert area definitions are edited using the graphic tablet. (See [Chapter 12](#) for editing of alert areas.) When an alert area is defined, it (just as the alert types and thresholds) is sent to the RPG at that time or whenever there is a communications line connect. When alerts are received, their status is displayed via the command described in paragraph [8-3.2 Alert Status Display..](#) Also, abbreviations are displayed on the alert status lines at all times.

13-1.2.1 Alert Threshold Values.

Selection:

Alphanumeric (only): (AD)APTATION DATA,(A)LERT PROCESSING,
(T)HRESHOLD VALUES

Active

Environment: Always active.

Options and

Parameters: None.

Operation: This will display, on the alphanumeric screen, the current data values associated with the individual alert codes, which are selected on the PUP's Alert Processing Edit Screen (listed also on the adaptation data menu). This information is supplied automatically by the RPG, whenever it changes, and kept on hand at the Associated PUPs for this display. There is no way for a PUP to request this information from the RPG.

This data is associated with alert processing but is not part of PUP adaptation data. It is located on the adaptation data menu for convenience.

13-1.3 Product to Background Map Associations.

Selection:

Alphanumeric (only): (AD)APTATION DATA,(B)ACKGROUND MAP
ASSOCIATIONS,<PROD-ID#>
Enters Background Map Associations edit screen at this point.

Active

Environment: Always active.

Options and

Parameters: Geographic Product ID number (16-47,55-61,63-72,78-80,83,87-90).

Defaults: None.

Operation: The Background Map Associations (adaptation data category number 13) function allows the user to associate background maps with specific products so that, when a product is displayed, its associated background maps will automatically be displayed along with the product. Once the product identification number (for which the background map associations are to be edited) is entered along with the rest of the above command line, the Background Map Associations edit screen will be displayed. Each background map is assigned a number from one to 32. The map numbers and the map name associated with the number are displayed on the lower half of the edit screen. The cursor will be positioned on the "Association" line under map number one. If any map number is to be associated with a product, an "X" should be placed under the map number on the "Association" line. The Return key is used to save the associations on the edit screen. Once the associations have been saved, the next time the product (whose background map associations have been edited) is displayed, all background maps now associated with the product will be automatically displayed.

Note: It should be noted that the more background maps associated with a product, the less visible the product data will appear (when displayed in fore- ground) and the longer it will take for that product plus maps to be completely displayed. (See [APPENDIX A](#) for an example of the Background Map Associations edit screen. This is in order following the Adaptation Data menu.)

13-1.4 Product to Overlay Associations.

Selection:

Alphanumeric (only): (AD)APTATION DATA,(O)VERLAY
ASSOCIATIONS,<PROD-ID#>
Enters Overlay Associations edit screen at this point.

Active

Environment: Always active.

Options and

Parameters: Geographic product ID number (16-47,55-61,63-72,78-80,83,87-90).

Defaults: None.

Operation: The Overlay Associations (adaptation data category number 13) allow the user to associate overlays with specific products so that, when a product is displayed, its associated overlays will automatically be displayed along with the product. Once the product identification number (for which the overlay associations are to be edited) is

entered on the alphanumeric command line, the Overlay Associations edit screen will be displayed. Each overlay is assigned a number from one to 16. The overlay numbers and the overlay name associated with the number are displayed on the lower half of the edit screen. The cursor will be positioned on the "Association" line, under overlay number one. If an overlay is to be associated with the selected product, an "X" should be placed under the overlay number on the "Association" line. The Return key is used to save the current associations on the edit screen. Once the associations have been saved, the next time the product (whose overlay associations have been edited) is displayed, all overlays now associated with the product will be automatically displayed.

Note: It should be noted that the more overlays associated with a product, the less visible the product data will appear, and the longer it will take for that product to be completely displayed. (See [APPENDIX A](#) for an example of the Overlay Associations edit screen.)

13-1.5 Monitor Performance Update Period.

Selection:

Alphanumeric (only): (M)ONITOR PERFORMANCE,(P)ERIOD,<MINUTES>

Active

Environment: Always active.

Options and

Parameters: Number of minutes used for the monitor performance update period (one to 9999 (approximately one week)).

Defaults: None.

Operation: The Monitor Performance Period (adaptation data category number 7) allows the user to select the time interval in which monitor performance data is collected. If monitor performance is turned on (see paragraph [Section 7-9: Monitor Performance Begin and End Monitoring](#)), then, at the end of each monitor performance period, the monitor performance data is written to disk and displayable via the status of monitor performance (see paragraph [8-1.6 Monitor Performance Display.](#)). The period is entered in minutes at the end of the above alphanumeric command line (without entering a semicolon) and will determine the interval between monitor performance data collection periods. If the period is left out of the above alphanumeric command line (without entering a semicolon), the current monitor performance period will be displayed on the alphanumeric feedback line. The monitor performance period can be any number between one and 9999 minutes (approximately one week).

Due to the size restriction of the Performance Monitor File on disk, a maximum of up to 99 performance monitor periods may be recorded at a time. Once the maximum is reached the monitor performance function will end automatically.

Note: This is, in fact, part of adaptation data but is included on the Monitor Performance menu for operator convenience.

13-1.6 Geographic Cursor Home Location.

Selection:

Graphic Tablet:CURSOR HOME DEFINE

Alphanumeric: (AD)APTATION DATA,(C)CURSOR HOME
LOCATION*,<LATITUDE>,<LONGITUDE>

*Current settings displayed if command ends at this point.

Active

Environment: Always active.

Options and

Parameters: Latitude and longitude.

Defaults: None.

Operation: When using the CURSOR HOME DEFINE function on the graphic tablet to define the "Home" location, it will define it to be the "currently selected cursor coordinate". This means that prior to selection of CURSOR HOME DEFINE, the cursor should be positioned on a geographic display and the puck button depressed at the location to be defined as "Home" (preferably with the Latitude/Longitude cursor readout in effect, although this is not strictly necessary). When using CURSOR HOME DEFINE to define "Home" at a prespecified Latitude/Longitude, the cursor readout must first be made to contain those coordinates by repeatedly moving the puck and depressing the button. To define the "Home" location in this case, it is probably easier to use the alphanumeric terminal command to enter the coordinates directly.

When using the (AD)APTATION DATA, (C)CURSOR HOME LOCATION, <LATITUDE>, <LONGITUDE> command, the current settings of latitude and longitude may be displayed by depressing RETURN following AD,C. When entering these fields of data, use the following format: xxxx.xxx where the first x may be a minus sign or blank and the other x's are decimal integer and fractional digits. Leading and following zeros may be omitted. Positive numbers indicate north and east, respectively, for latitude and longitude, and negative numbers indicate south and west, respectively. To set the location, the user just enters the latitude and longitude of the new cursor home at the end of the alphanumeric command line. If the command line ends (without entering a semicolon) before the latitude or longitude parameters are entered, the current value of the remaining parameters will be displayed.

The cursor home location (adaptation data category number 3) is a location (in latitude and longitude) to which the cursor will move when the CURSOR HOME function is selected from the graphic tablet. In addition, the cursor "Home" location defines the geographic position from which the cursor readout AZRAN (HOME), ("A/R(HOME)" as it appears on the display) will indicate the azimuth and range of the currently selected cursor location. This allows the operator to obtain the azimuth and range of the location of any weather phenomenon from any point.

Section 13-2: Extended Adaptation Data

Extended adaptation data contains the adaptation data categories that are not changed very often and which are protected by the password to prevent accidental modification by unauthorized personnel. Incorrect modification of these categories could have a detrimental effect on PUP operations. The following subsections describe the categories that the operator may select:

- 13-2.1 Accessing Extended Adaptation Data.
- 13-2.2 Overlay Precedences.
- 13-2.3 Product to Color Mix Pairings.
- 13-2.4 Password
- 13-2.5 RCM Parameters.
- 13-2.6 Other User List
- 13-2.7 RPG List.
- 13-2.8 Narrowband Line Definitions.
- 13-2.9 SCIT HDA and TVS Display Parameters.

13-2.1 Accessing Extended Adaptation Data.

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>

Active

Environment: Always active.

Options and

Parameters: Password.

Defaults: None.

Operation: Accessing the extended adaptation data is done with the PUP password so that unauthorized operators cannot access this data. Once the password is entered on the command line and the Return key depressed, the Extended Adaptation Data menu will be displayed and the password on the command line will be replaced with five asterisks. The asterisks prevent a passerby from seeing the password on the command line once the password is entered. Once the Extended Adaptation

Data menu is displayed, the password need not be reentered to access the selections on the menu as long as the partial command exists on the command line. Adding the additional selections to the end of the partial command line (with the asterisks) will cause the entered selection to execute.

Note: It is suggested that the password be written down and kept in a safe place. If the password is lost, the Extended Adaptation Data menu, protected adaptation data, and System Options menu will be inaccessible.

Function Key F4, RESTORE COMMAND, will only restore the command with the asterisks in place of the password. This must be edited back to the actual password before the command line will be accepted again unless the Extended Adaptation Data menu is still displayed.

13-2.2 Overlay Precedences.

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,
(P)RECEDENCE OF OVERLAYS
Enters Precedence of Overlays edit screen at this point.

Active

Environment: Always active.

Options and

Parameters: None.

Defaults: None.

Operation: Overlay Precedences (adaptation data category number 22) are used to arrange which overlay is displayed on top of another overlay when more than one overlay is displayed. After the above alphanumeric command line is entered, the Precedence of Overlays edit screen will be displayed. This edit screen allows the user to arrange the overlay numbers (one through 16). Each is associated with an overlay name, located on the edit screen, in order of graphic screen precedence. The cursor will be positioned at the highest precedence (one) location. The Return key will save the overlay precedences currently on the edit screen. The highest precedence overlay (one) will be displayed on top of all other overlays.

13-2.3 Product to Color Mix Pairings.

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,(C)OLORS,
(P)RODUCT,<PROD-ID#>,(C)OLOR SCALE,
<SCREEN>*

(AD)APTATION DATA,<PASSWORD>,(C)OLORS,
(P)RODUCT,<PROD-ID#>,(G)RAY SCALE,
<SCREEN>*

(AD)APTATION DATA,<PASSWORD>,(C)OLORS,
(P)RODUCT,<PROD-ID#>,(H)ARDCOPY **

(AD)APTATION DATA,<PASSWORD>,(C)OLORS,
(S)AVE COLOR SELECTIONS

(AD)APTATION DATA,<PASSWORD>,(C)OLORS,
(C)ANCEL COLOR SELECTION MODE

* Enters Graphic Screen Color Selection Mode

** Enters Alphanumeric Edit Screen

Active

Environment: Always active except when color selection mode is already active.

Options and

Parameters: Product screen color scale, product screen gray (or optional color) scale, product hard-copy colors, the product ID for which the colors are being defined, save color selections, and cancel color selection mode.

Defaults: None

Operation: Product to Color Mix Pairings (adaptation category number 14) defines the screen color scale, screen gray scale, or hardcopy colors for any selected graphic product ID number. Use of the above alphanumeric command lines identified with a single asterisk will place the PUP system into graphic screen color selection mode. Color selection mode is used to select screen colors and screen gray scales (or optional color scale) for all graphic products.

Once the product ID number and color or gray scale are selected, the currently defined color or gray scale for the product selected will appear on the graphic screen along with a color selection menu. To change a color on the current color bar, first position the cursor over the data level to be changed, in the data level selection area, and press the puck button for the correct screen. The arrow (>>) to the left of the cursor bar indicates the current level being changed. Next move the cursor to the color value selection area and press the puck button to change the red, green, and blue components, if desired. Each selection carries a two-digit, hexadecimal value ranging from 00 to FF (decimal 0 to 255). The left digit for each primary color will have the most effect on the color. The right digit is for fine tuning. The current numerical color value for each data level is displayed to the right of the color bars.

Once the selected screen color or gray scale has been changed, the operator must use the command selecting the Save Color Selections option. This option will save the edited color selections so that the next time the selected product is displayed it will reflect the edited colors. This option is used only to save screen color and gray scale selections, not hardcopy.

To cancel the screen color or gray scale selection mode, use the cancel option command (AD,<password>,C,C) on the alphanumeric command line or simply place another display over the color selection screen without saving it. This will cancel the color selection mode and leave the colors unchanged.

If the hardcopy option is selected, the Hardcopy Color Selection edit screen will be displayed on the alphanumeric terminal. Hardcopy colors are represented by a three-digit, hexadecimal value. Each digit represents a different color (red, green, or blue). When the edit screen is displayed, the cursor will be positioned on the first data level under the first digit. The list will contain all the current color assignments for the product ID. After the color selections have been edited, they must be saved. To save the colors, position the cursor anywhere except the hardcopy request box and press Return. To make a hardcopy of the colors while in the hardcopy color selection edit screen, press the HOME key and the cursor will be positioned in the hardcopy request box, then press Return and a hardcopy of the colors will be generated. Once the hardcopy is generated, hardcopy color edit mode is still active. If the colors have not yet been saved, this must be done either before a function key is depressed to exit the edit screen or before a new command is entered. To cancel hardcopy color selection mode, use either the RETURN TO MAIN MENU (F1) or RETURN TO PREVIOUS MENU (F2) function key without selecting Return. This will exit the Hardcopy Color Selection edit screen and leave the colors unchanged.

Notes: When editing graphic screen colors, it may be desirable to place the color set to be edited on one graphic screen by selecting the graphic screen color selection mode for the desired product ID and then canceling it without editing. This screen may now be used for reference while the editing is reselected on the other screen and the colors have been changed, followed by the alphanumeric command to save them.

Graphic Color Selection menus will remain on the screen, even after deactivation, until another graphic display is selected.

It is probable that product colors will be agency-controlled. In this case, the color edit feature will allow sites to locally update product colors in response to periodic agency directives, reducing the need for adaptation data reissues to PUP sites.

The gray scale (designed to use gray shades employing equal amounts of red, green, and blue primary light colors), may be defined as an alternate color scale (for color blind operators, for example). In this case, it must be remembered to avoid making hard copies while this scale is selected since these colors will automatically be converted to equivalent gray shades on the copies.

13-2.4 **Password**

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,(PASS)WORD
CHANGE,<PASSWORD> [new password]
Where the first <PASSWORD> indicates the currently defined password which may be from 1 to 20 alphanumeric characters.

After this entry the PUP puts "AD,*****," on the command line and the message "YOU ARE CHANGING THE PASSWORD. REENTER COMMAND TO VERIFY." on the feedback line. At this point, the operator should complete the command line with (PASS)WORD CHANGE, <PASSWORD> [new password] again, entering the identical new password that was entered the first time, to complete the password change. If the same password is not entered, the "REENTER" message will be repeated until it is. Depress F1, F2, or F3 to cancel this operation prior to completion.

Active

Environment: Always active.

Options and

Parameters: New password (1 to 20 characters).

Defaults: None.

Operation: This password (adaptation data category number 20) is used to access the Extended Adaptation Data menu commands from the Adaptation Data menu command and the Systems Option menu commands from the Main Menu (blank command line). Use of the above alphanumeric command (listed on the Extended Adaptation Data menu) will change the current password to the new password. The password can be any character string from one to 20 characters.

Note: It is not possible for an operator to view the current password and it is suggested that the password be recorded and kept in a safe place. If the password is forgotten, then extended adaptation data and the Systems Option menu will be inaccessible to the user.

Reloading the adaptation data file (an off-line procedure performed by a technician) when adaptation data reissues to the PUP are made, or, after maintenance on the

PUP disk storage unit is performed, will reset the password back to the adaptation data default set at the time adaptation data was generated.

13-2.5 RCM Parameters.

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,(RCM) PARAMETERS

After this entry the RCM Parameter Edit Screen will be displayed.

Active

Environment: Always active.

Options and

Parameters: None.

Defaults: None.

Operation: The RCM Parameters are made up of the Edit Radar Coded Message flag (adaptation data category number 2) and Radar Coded Message Edit, Warning Times (adaptation data category number 26). Use of the RCM Parameter Edit Screen, via the above alphanumeric command (listed on the Extended Adaptation Data Menu), allows the operator to change the contents of these two adaptation data categories.

The Edit Radar Coded Message flag indicates whether or not a radar coded message from an Associated RPG may be edited and sent back to the RPG. A "0" indicates that the radar coded message cannot be edited. A "1" indicates that the preedit version of the radar coded message can be edited and returned to the RPG (also requested). It should be noted that the RPG also has adaptation data that specifies which user is to receive and edit the RCM. These must match for RCM editing to work.

The two RCM Edit Warning Times indicate the number of minutes prior to the end of the RCM edit session that warning messages will be displayed on the system status lines. The warning messages displayed will contain the number of minutes left for RCM editing and, upon display, will flash and beep the alphanumeric terminal. There are two warning times corresponding to the two warning messages on the RCM Parameter Edit Screen. The first warning time must be greater than or equal to the second warning time. If the operator desires only one RCM Edit Warning, then the two warning times should be set equal to each other. See paragraph [12-1.2.1 RCM Edit Timing and Warning Messages](#). for details regarding these warning times.

Note: The Radar Coded Message Edit session duration is determined at the RPG in RPG adaptation data. Also, the time allowed to begin editing is determined at the RPG in RPG adaptation data. Those times are sent to the RPG OP or PUP with the preedit version of the RCM.

13-2.6 Other User List

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,(D)IAL IN OTHER USER LIST Enters Other User List Edit Screen at this point.

Active

Environment: Always active.

Options and

Parameters: None in the command. Edit screen entries described below.

Defaults: None.

Operation: The Other User List edit screen is used to specify up to 50 Other Users, at a time, which may get products from this PUP. Use of this subcommand language edit screen is described in paragraph [2-4.5 Other Subcommand Language Edit Screens](#). An Other User who dials into the PUP without identifying the proper Port Password (see paragraph [12-2.4 Enabling/Disabling Other Users for Message Distribution](#).) plus the proper Other User ID Number and Other User Password, specified here, will be automatically disconnected without receiving products. For each valid Other User, specify a one to four decimal digit ID Number and a six character password (same rules as the Dial-In Port Password in paragraph [13-2.8 Narrowband Line Definitions](#).) Also specify a Y (yes) or N (no) for Disconnect Override Privileges, the use of which is described in [Section 4-14.2 Other User Distribution](#).

13-2.7 RPG List

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>, (R)PG LIST
Enters RPG List Edit Screen at this point.

Active

Environment: Always active.

Options and

Parameters: None in the command. Edit screen entries described below.

Defaults: None.

Operation: This list defines the use of the dial-out (not dedicated) phone line(s) to RPGs including the dial-out to the associated RPG. The RPG list contains the RPG Identification Numbers, RPG Port Passwords, RPG User Passwords, RPG Mnemonics, Telephone Numbers and Override Disconnect Requests for every RPG that dial-out, one-time product requests can be made to from this PUP. Up to 200 RPGs (25 pages at eight RPGs per page) may be specified on this list. All information must be specified for each RPG on the list. Use of this subcommand language edit screen is described in paragraph [2-4.5 Other Subcommand Language Edit Screens](#).

The RPG ID Number is specified as one to four decimal digits. For each RPG listed, this must match the RPG ID number which the RPG has in its adaptation data to identify itself.

The RPG Port Password is specified as six characters (any characters) which may or may not include spaces in any locations. This must match exactly (all six characters) the Port Password associated with the specified telephone number which the specified RPG has in its adaptation data. Otherwise, the only thing the PUP could get from that RPG phone number is an error message.

The RPG User Password is another six character password associated with this PUP. It must match exactly (including any spaces) the password which that RPG has in its

adaptation data for this PUP. If it does not match exactly, all the PUP will receive is an error message from that RPG.

The four alphanumeric character RPG mnemonic is what the PUP operator uses to identify that RPG ID, both on product displays and when making Non-associated RPG product requests. These mnemonics are not stored in the RPG's adaptation data, but should be defined consistently at all PUPs. It is possible to list the same RPG more than once for different phone numbers. In this case, different mnemonics must be used to be able to select each one.

The up to 24 digit phone number can be entered, left or right justified in the field. Special codes for extensions or modem control may be included since there is a maximum of 24 digits. Note that this list will be different from PUP to PUP because different phone numbers may be assigned different PUPs as well as the fact that the area codes are present only for RPGs in other area codes.

The Override Disconnect is provided to request extra connection time when dialing-up an RPG. It only has meaning in the case of repeated one-time requests made before earlier requests are satisfied because the RPG always disconnects the PUP once its one-time product requests are satisfied. Place either a Y (for Yes, request the extra connect time) or an N (for No, do not request extra connect time).

Note: Use of this subcommand language edit screen is described in paragraph [2-4.5 Other Subcommand Language Edit Screens.](#)

The RPG ID number which associates the associated RPG with this PUP (for this NEXRAD Unit) is found in adaptation data category 6 (See paragraph [13-2.5 RCM Parameters.](#)) in protected adaptation data. It is not in this list. Both lists together, however, determine what phone number (and passwords) is used for the DIAL-UP ASSOC RPG on the graphic tablet. When this is selected on the tablet, first the Associated RPG ID is obtained from category 6, then this list is scanned to find that RPG ID. When it is found, the associated information is used for the dial-up. Protected adaptation data category 23 defines the three RPG ID numbers of RPG 1, RPG 2 and RPG 3 on the graphic tablet. When one of those functions is selected, that RPG ID number is used to scan this list. When a matching RPG ID is found in this list, the associated information is used for the dial-up.

NOTE: Editing is performed by editing the edit line and hitting Return to move the line below. Multiple lines can be edited one at a time. Depressing F1 or F2 exits the edit screen and saves the edits made on this screen.

13-2.8 Narrowband Line Definitions.

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>, (N)ARROWBAND
LINE DEFINITIONS
Enters Narrowband Line Definition Edit Screen at this point.

Active

Environment: Always active.

Options and

Parameters: None in the command. Edit screen entries described below.

Defaults: None.

Operation: This extended adaptation data list defines the hardware implementation and intended use of the narrowband communications lines at the PUP. It provides for the required expansion requirements of up to ten communication lines per PUP. The Narrowband Line Definition Edit Screen used to edit this list differs from other list type edit screens in that the ten lines must always be defined. Therefore, there is no provision to insert or delete lines. The word "lines", in this case, means both communication lines and lines of information on the edit screen. Use of the subcommand language edit screen is described in paragraph [2-4.5 Other Subcommand Language Edit Screens](#).

There are nine fields defined for each line. The first field is the line number which is always protected and is provided for information only. It contains the line number specified in the edit screen modify command. The number of lines is always ten. The second field, the Line Name, must be the four character (the first character being alphabetic) device name which is system generated into the PUP computer's operation system (OS32). The Communications Option field is used to indicate the communications line parameters being used. "Y" indicates the use of parameters for communications through a satellite link. "N" indicates the use of parameters for communications through a non-satellite link. When making a change to the Narrowband Line Definition Edit screen a PUPDOWN/PUPUP sequence is required to save all narrowband line changes to adaptation data. The Line Class field is used to determine what this communication line is used for, as follows:

NONE = Line not Used
 ARPG = Dedicated to RPG (0 to 2 allowed)
 NARPG = Dial-Out to RPG (0 to 8 allowed)
 PUES = Dedicated to PUES (0 to 2 allowed)
 OTHER = Dial-In from Other Users (0 to 4 allowed)

The Baud Rate field must be set to one of the following values: 0, 1200, 2400, 4800, 9600, **14400** or 56000 bits per second. No other numbers will be accepted. This entry is used only by Monitor Performance to determine percent line utilization for overload warning messages. It should be set to match the switch setting on the hardware modem which actually determines the transmission rate. If that switch is changed, this number should be edited to avoid spurious communication line overload messages. 56000 bits per second is only for Class 1 (Dedicated to RPG) lines from an RPG OP.

The sixth field is the line type which is described as follows:

DEDIC = Dedicated (for ARPG, PUES, or OTHER)
 DIALOUT = Dial Out (for NARPG)
 DIALIN = Dial In (for OTHER)

The seventh parameter is the Dial In Port Password. The Port Password must be sent by an Other User to the PUP before any distribution of products is allowed. This password is always four characters which may or may not include space characters in any locations which are specified for space characters. Any alphabetic, numeric or special character may be used. The password that the Other User sends must be four identical characters including any spaces specified.

The eight parameter is the Distribution Mode to Other Users. Refer to paragraph [4-14.2 Other User Distribution](#) for an explanation of the meaning. One, two, or three may be placed here to specify the mode.

The ninth field contains the maximum connect minutes, also described in paragraph 4-14.2 Other User Distribution.. Values between one and 1440 are valid.

Note: Editing is performed by editing the edit line and hitting Return to move the line below. Multiple lines can be edited one at a time. Depressing F1 or F2 exits the edit screen and saves the edits made on this screen.

13-2.9 **SCIT HDA and TVS Display Parameters.**

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>, (S)CIT **HDA** and **TVS** DISPLAY PARAMETERS

Enters SCIT **HDA** and **TVS** Display Parameters Edit Screen at this point.

Active

Environment: Always active.

Options and

Parameters: None in the command. Edit screen entries described below.

Defaults: None.

Operation: This extended adaptation data screen defines the parameters the PUP uses when displaying the Storm Track Information (STI), the Hail Index (HI) and the Tornado Vortex Signature (TVS) products and overlays. The edit screen is divided into three sections: SCIT, HDA and TVS. The SCIT section contains three fields which pertain to the STI product and overlay. The HDA section contains four fields which apply to the HI product and overlay. The TVS section contains one field which applies to the TVS product and overlay. The following two paragraphs describe the edit fields within these two sections:

SCIT

NUMBER OF CELLS TO DISPLAY: When displaying the STI product or overlay at any display center or magnification, the display always starts with the storm cell having the highest VIL value. The display of cells continues, in decreasing VIL order, until the number of cells displayed reaches the value contained in this field, or, no more storm cells exist in the current display window. If the message "nn CELLS IN WINDOW NOT DISPLAYED" appears at the lower edge of an STI product, it indicates that more cells are located within the current display window than this edit screen field permits. In that case, this value may be increased at a cost of cluttering the display with storm cells of lower VIL values.

DISPLAY PAST POSITIONS?: This field defines the display (or non-display) of storm cell positions for past volume scans as well as the line that connects them. Placing a "N" in this field suppresses the display of past storm cell positions. Placing a "Y" in this field enables the display of past storm cell positions.

DISPLAY FORECAST POSITIONS?: This field defines the display (or non-display) of forecast storm cell positions as well as the line that connects them. Placing a "N" in this field suppresses the display of forecast storm cell positions. Placing a "Y" in this field enables the display of forecast storm cell positions. The time interval between forecast storm cell positions is defined in RPG adaptation data.

HDA

PROBABILITY OF HAIL, MINIMUM DISPLAY THRESHOLD: This threshold value must be met before a probability of hail symbol (smaller green triangle) will be displayed for a given storm cell as part of a HI product or overlay. Entering a "D" in this field will disable any display of the probability of hail symbol on the HI product or overlay. When the hail symbol is disabled, the storm cell ID will still be displayed.

PROBABILITY OF HAIL, SYMBOL FILL-IN THRESHOLD: This threshold value must be met before a probability of hail symbol (smaller green triangle) will be displayed as a solid, filled-in triangle. A probability of hail symbol for a cell which has a probability of hail less than this threshold is displayed as an open triangle.

PROBABILITY OF SEVERE HAIL, MINIMUM DISPLAY THRESHOLD: This threshold value must be met before a probability of severe hail symbol (larger green triangle) will be displayed for a given storm cell as part of a HI product or overlay. Entering a "D" in this field will disable any display of the probability of severe hail symbol on the HI product or overlay. When the hail symbol is disabled, the storm cell ID will be still be displayed.

PROBABILITY OF SEVERE HAIL, SYMBOL FILL-IN THRESHOLD: This threshold value must be met before a probability of severe hail symbol (larger green triangle) will be displayed as a solid, filled-in triangle. A probability of severe hail symbol for a cell which has a probability of severe hail less than this threshold is displayed as an open triangle.

TVS

DISPLAY ELEVATED TORNADO VORTEX SIGNATURES?: This option allows the suppression of the display of elevated TVS symbols on the TVS product and overlay. Elevated TVS symbols are red, inverted open triangles. Placing a letter "N" in this field suppresses the display of ETVS symbols. Placing a "Y" in this field causes the PUP to display ETVS symbols (if generated at the RPG).

Section 13-3: Supervisory Section - Protected Adaptation Data

Protected adaptation data contains the adaptation data categories which must be changed carefully or it may adversely affect the PUP operations. This manual should be referenced to change the data in these categories because the menus for this data are purposely not self-explanatory. It is suggested that the data in these categories not be changed by anyone but supervisory or authorized personnel. It is not intended that a PUP operator edit this data. To help ensure this, the protected adaptation data is double-protected so that no one could change it by accident. The following subsections describe these categories and how to access the data in them:

- 13-3.1 Accessing Protected Adaptation Data.
- 13-3.2 Radar Location (Category 1).
- 13-3.3 Geographic Preset Center Location (Category 4).
- 13-3.4 PUP/RPGOP Flag (Category 5).
- 13-3.5 PUP and Associated RPG Identification Numbers (Category 6).
- 13-3.6 Task Priorities (Category 8).
- 13-3.7 Hardware Implementation (Category 9).
- 13-3.8 PUES Distribution Product Priorities (Category 12).
- 13-3.9 Maps to Color Mix Pairings (Category 15).
- 13-3.10 Special Symbol Font Definitions (Category 16).
- 13-3.11 Graphic Tablet Selection to Function Assignments (Category 17).
- 13-3.12 Overlay Colors (Category 18).
- 13-3.13 Preselected RPGs (Category 23).
- 13-3.14 Overload Warning Thresholds (Category 24).
- 13-3.15 Maps to PUES and Other Users (Category 25).

Editing this data should only be done by qualified personnel with the proper directive, with detailed instructions, and/or a proper understanding of the representation of the hexadecimal numeric digits listed in each data category. Each hexadecimal digit can take on an entirely new meaning from category to category.

All data in these protected categories can be edited in its hexadecimal, numeric form ONLY. Each halfword is expressed as four hexadecimal digits with a space between each. Each halfword represents 16 bits (binary digits) of data. A maximum of 64 halfwords to be edited can be listed on the alphanumeric screen at one time. To access data past this, within a single category, the correct offset must be entered. Editing more than this is possible only by reentering the command with a new offset.

No one without a clear understanding of hexadecimal numbers should attempt to compute new values for these fields, except in categories where all halfword numbers are the same as decimal; i.e., 0000 to 0009. The maximum decimal equivalent of a halfword, in any case, is 32,767 (7FFF hexadecimal).

13-3.1 Accessing Protected Adaptation Data.

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,XXX¹,
<CATEGORY NUMBER>,<NO. OF HALFWORDS OFFSET>
Use of this command will display a Numerically Edited Data edit screen which contains up to eight columns by eight rows of hexadecimal numbers (halfwords) which can be edited.

1. NOTE: Second Password

Active

Environment: Always active.

Options and

Parameters: - The adaptation data category number.
- Number of halfwords offset into the data to begin editing (normally enter zero). This is a decimal number.

Defaults: None.

Special

Option: Depression of the HELP function key (F5) after entering the above command, through "the password", and before depressing Return, will cause a list of adaptation data categories to appear. The command can then be completed.

Operation: Accessing the protected adaptation data categories is done with a double password. The first password is the same password used for other extended adaptation data. The second password cannot be changed by the user.

The category number is the adaptation data category number. See Table XI for a list of adaptation data categories and their category numbers. Use of function key F5 HELP (as described under Special Option above) displays a list of adaptation data categories on the alphanumeric screen. The command line may now be completed with category and offset numbers. However, prior to completing the command and depressing Return, the three asterisks representing the second password must be reedited back to the second password. The number of halfwords offset describes the number of halfwords from the beginning of the adaptation data category that is to be displayed and edited. An offset of zero would display the category from the beginning. This is normal for all but very large categories. The maximum number of halfwords offset varies for each adaptation data category. This maximum number is listed in the individual category sections of this section of the manual.

Once the command line has been completed and the Return key depressed, the Numerically Edited Data edit screen will be displayed with the current data selected. At this time, the two passwords will be turned to asterisks on the command line.

There is a maximum of 64 halfwords displayed on any edit screen at any one time; however, the current edit screen will never display more halfwords than are in the selected adaptation data category. Each field displayed is one halfword and all fields are displayed in hexadecimal format where values from zero through 15 decimal are represented by digits zero through nine and then A-F. A-F represents decimal values 10-15. Where the representations of the numbers are normally thought of as decimal values, they must be converted to hexadecimal before editing.

When the data appears on the edit screen, the cursor will be positioned at the first number. Editing may only be performed by typing over any digits of the up to 64 halfwords of data to be changed and moving the cursor, if necessary, with the Tab or the Move Cursor (arrow) keys to skip over digits to be left alone.

Saving the editing is performed by depressing the Return key after editing the current display.

Editing may be canceled, without saving, by depressing function key F1, F2, or F3, or others, without depressing Return first.

To edit successive offsets or categories, while one edit screen in this category is displayed, the current command left on the command line (or restored via function key F4) may be edited and reselected; however, the three asterisks which replaced the second password must be edited back to the second password first.

13-3.2 Radar Location (Category 1).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**¹,1
<NO. OF HALFWORDS OFFSET>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (normally enter zero)

Defaults: None.

Adaptation

Data

Category

Number: 1

Maximum

Number of
Halfwords

Offset: 3

Operation: The Radar Location supplies the coordinates, in latitude and longitude, of the radar location for the associated RDA site. Halfwords 0-1 contain the latitude of the radar multiplied by 1000 decimal and halfwords 2-3 contain the longitude of the radar multiplied by 1000 decimal. Positive values represent north for latitude and east for longitude. The values contained in the above four halfwords are used as two full words. Therefore, numbers used in this category must be broken into two halfword format before editing. The decimal permissible values for this category are as follows:

Entry	Range (decimal)	Halfword Offset
Latitude	-90,000 to 90,000	0 - 1
Longitude	-180,000 to 180,000	2 - 3

13-3.3 Geographic Preset Center Location (Category 4).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**²,4,

1. NOTE: Second Password

2. NOTE: Second Password

<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (normally use zero)

Defaults: None.

Adaptation

Data

Category

Number: 4

Maximum

Number of

Halfwords

Offset: 3

Operation: The Geographic Preset Center Location supplies the coordinates, in latitude and longitude, of the geographic preset center display location. This is the location around which a product will be centered when the PRESET CENTER function is selected from the graphic tablet. This should virtually always be the same as the RDA location. Offsets 0-1 contain the latitude of the preset center location multiplied by 1000 and offsets 2-3 contain the longitude of the preset center location multiplied by 1000. The values contained in the above four halfwords are used as two full words. Therefore, the number used in this category must be broken into a two halfword format before editing. The decimal permissible values for this category are as follows:

Entry	Range (decimal)	Halfword Offset
Latitude	-90,000 to 90,000	0 - 1
Longitude	-180,000 to 180,000	2 - 3

13-3.4 PUP/RPGOP Flag (Category 5).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**1,5,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (enter zero only).

Defaults: None.

Adaptation

Data

1. NOTE: Second Password

Category
Number: 5

Maximum
Number of
Halfwords
Offset: 1 (not used)

Operation: The PUP/RPGOP flag indicates whether the site is a PUP or an RPGOP. Halfword 0 is the only valid halfword for this category. Halfword 1 is used for boundary alignment and should not be edited. A zero in halfword 0 indicates that the current site is a PUP and a one in halfword 0 indicates that the current site is an RPGOP. The permissible values for this category are as follows:

Entry	Range (decimal or hex)	Halfword Offset
PUP/RPGOP flag	0 to 1 (0 to 1 hex)	0

When set to one, the flag will allow PUP text messages and product annotations to be sent to the RPG for redistribution to other PUPs.

13-3.5 PUP and Associated RPG Identification Numbers (Category 6).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,*¹,6,
<No. of halfwords offset>

Active
Environment: Always active.

Options and
Parameters: Number of halfwords offset (normally enter zero).

Defaults: None.

Adaptation
Data
Category
Number: 6

Maximum
Number of
Halfwords
Offset: 1

Operation: The PUP and Associated RPG Identification Numbers supply the identification numbers of the current PUP site and its Associated RPG site. Halfword 0 contains the PUP ID number. Halfword 1 contains the associated RPG ID number. The permissible values for this category are as follows:

Entry	Range (decimal or hex)	Halfword Offset
PUP ID	1 to 999 (1 to 3E7 hex)	0
RPG ID	1 to 999 (1 to 3E7 hex)	1

These numbers must correspond with the RPG ID number list in category 11 and all PUP and RPG ID number lists in all other PUPs' and RPGs' adaptation data in the entire NEXRAD system.

13-3.6 **Task Priorities (Category 8).**

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**1,8,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (normally enter zero).

Defaults: None.

Adaptation
Data

Category
Number: 8

Maximum
Number of
Halfwords
Offset: 1

Operation: This category supplies the relative program task priorities for Product Distribution and Archive. Halfword 0 contains the Product Distribution task priority and halfword 1 contains the Archive task priority. The highest priority allowable is one. These priorities are used to determine the operating system priorities at which the Product Distribution and Archive functions will run. Changes to this category can affect the time it takes for product distribution and archive functions if they are executing simultaneously. Permissible ranges for this category are as follows:

Entry	Range (decimal or hex)	Halfword Offset
Product Distribution	1 to 2 (1 to 2 hex)	0
ARCHIVE	1 to 2 (1 to 2 hex)	1

1. NOTE: Second Password

To set one function at a higher priority than the other, set it to one and the other to two; otherwise, they may be set to the same value.

13-3.7 **Hardware Implementation (Category 9).**

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**¹,9,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (normally enter zero).

Defaults: None.

Adaptation
Data

Category
Number: 9

Maximum
Number of
Halfwords
Offset: 5

Operation: The Hardware Implementation category supplies the number of communication lines and Optical disk archive devices available to the current site. Halfwords 0-4 are the only valid halfwords for this category. Halfword 5 is used for boundary alignment and should not be edited. Halfword 0 contains the number of dedicated communication lines to the associated RPG. Halfword 1 contains the number of dial-out communication lines to RPGs. Halfword 2 contains the number of dedicated communication lines from PUES. Halfword 3 contains the number of dial-in communication lines from Other Users. Halfword 4 contains the number of archive Optical disk drives associated with the PUP site.

Halfword Entry	Range (decimal or hex)	Halfword Offset
No. dedicated RPG Communication Lines	0 to 2 (0 to 2 hex)	0
No. RPG Dial-Up Communication Lines	0 to 8 (0 to 8 hex)	1
No. dedicated PUES Communications Lines	0 to 2 (0 to 2 hex)	2
No. of Other User Communication Lines	0 to 4 (0 to 4 hex)	3
No. Archive Devices (does not include streamer tape device)	0 to 2 (0 to 2 hex)	4

If there are no RPG lines (e.g., for a training PUP), set their numbers to the minimum listed.

1. NOTE: Second Password

13-3.8 PUES Distribution Product Priorities (Category 12).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**¹,12,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (enter zero or 64 to access all data).

Defaults: None.

Adaptation

Data

Category

Number: 12

Maximum

Number of

Halfwords

Offset: 125

Operation: The PUES Distribution Product Priorities supplies a list of all product identification numbers and distribution priorities for only those products that are allowed to be distributed to PUES. Halfwords 0-124 are the only valid halfwords for this category. Halfword 125 is used for boundary alignment and should not be edited. Halfword 0 contains the number of PUES products in this category. Do not edit this number at a PUP. Halfwords 1, 3, 5,...123 contain the product identification numbers while the product distribution priorities are in halfwords 2, 4, 6,...124. These ID numbers and priorities alternate beginning with the first valid product ID number (i.e., Product ID, Priority, Product ID, Priority,...). The priority of a product always follows the product ID number. The permissible values for this category are as follows:

Table Entry	Permissible Range (decimal or hex)	Halfword Offset
No. of Products	0 to 75 (0 to 4B hex)	0
Product ID	16 to 90 (10 to 5A hex)	1,3,5,7,...123
Distribution Priority	0 to 7 (0 to 7 hex)	2,4,6,8,...124

A zero priority indicates that the product will be loadshed (i.e., never sent). Highest priority is a one which indicates that that product will be distributed before any other. Priority seven is the lowest priority.

13-3.9 Maps to Color Mix Pairings (Category 15).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**²,15,

1. NOTE: Second Password

<No. of halfwords offset>

Active
Environment: Always active.

Options and
Parameters: Number of halfwords offset (enter zero or 64 to access all data).

Defaults: None.

Adaptation
Data
Category
Number: 15

Maximum
Number of
Halfwords
Offset: 141

Operation: The Maps to Color Mix Pairings category supplies the graphic, screen and hardcopy background map colors along with a map to color index which indicates the color and texture (dotted lines, solid lines) of each map. Halfwords 0-140 are the only valid halfwords for this category. Halfword 141 is used for boundary alignment and should not be edited. Halfword(s) 32-39 are unused.

Graphic Screen Map Colors - Halfwords 0-31 (decimal) define the actual colors used for background maps displayed on the graphic screen. The same set of colors is used for both full and quarter screen modes. Each color is defined by two halfwords for a maximum of 16 colors. Although 16 colors are defined in this table (16 indices), only 12 (plus one for the black background color) may be used so that they will not be transparent on a quarter screen hard copy. This is because for every four graphic screen map colors, one quarter screen hardcopy color is assigned. Since one quarter screen hardcopy color must be transparent for the hardcopy, four graphic screen colors must map to this background color. Therefore, they cannot be used if they are to appear on a quarter screen hard-copy.

Screen colors in this table are defined in green, blue, and red format with each color contained in two halfwords with two hexadecimal digits for each primary light color (i.e., GGBB 00RR). Two digits for each primary color allow for 256 (decimal) possible values for each primary color. For example, GG represents the two hexadecimal digits (00 to FF) for green.

Hardcopy Map Colors - Halfwords 40-59 contain a list of colors used for hardcopy of background maps (twenty total). Each hardcopy color is defined by one halfword.

The first 16 halfwords (40-55) specify the colors used for maps in a hardcopy of a full screen display. The first value (halfword 40) repre-

2. NOTE: Second Password

sents the background. Although this value is ignored by the program which always sets the background to transparent, the value OFFF (transparent) should be assigned to this halfword. The remaining 15 halfwords are to be assigned with color values in an order which is similar to that used for graphic screen color values. Specifically, halfwords 41-43 are to be assigned with color values for color number 1-3, halfwords 45-47 are to be assigned with color values for color numbers 4-6, halfwords 49-51 are to be assigned with color values for color number 7-9, and halfwords 53-55 are to be assigned with color values for color numbers 10-12. The remaining fields (halfwords 44, 48, and 52) are to be assigned with the color value of OFFF (transparent). Hardcopy color values are in a red, green, and blue format contained in one halfword with one hexadecimal digit for each color component (i.e., ORGB).

The next four halfwords (56-59) specify the colors used for maps in a hardcopy of a quarter screen display. The first value (halfword 56) represents the background color. Although this value is ignored by the program which always set the background to transparent, the value OFFF (transparent) should be assigned to this halfword. The three values in halfwords 57-59 represent the color values for color numbers 1, 2, and 3 in Table XII under the heading of Quarter Screen Hardcopy Color Mapping. The quarter screen hardcopy colors are in the same format as the full screen hardcopy colors.

Map to Color Table -

Halfword 60 contains the number of background maps in the map to color table. Halfwords 61-140 contain the map to color table. This table assigns color numbers to map ID numbers. The map to color table is divided into 20 sets of four contiguous halfwords each. Each set assigns the color number to be used for a different map. The first halfword in each set (offsets 61, 65, 69,...137) contains the map identification number. See Table XIII for the map ID numbers. Map identification numbers in this table must be in ascending order (i.e., the map ID in halfword 61 must be less than the map ID in halfword 65). The second halfword in each set (offsets 62, 66, 70,...138) contains the color number for each map. This number determines in which color from the graphic screen color table (offsets 0-31) a map will be displayed. Table XII shows the Background Map Graphic Screen Colors and Mapping to Hardcopy Colors. The third and fourth halfwords in each set (offsets 63-64, 67-68,...139-140) contain the texture of the map lines drawn. Currently these should all contain the values FFFF, 0000. If other numbers were inserted, a complicated pattern of dotted/dashed lines would be produced for map vectors. Once all editing for this category is complete, a reset graphics (C;) command must be requested to activate the changes.

The permissible values for this category are as follows:

Table Entry	Permissible Range (decimal or hex)	Halfword Offset
Graphic Screen	0000 0000 to FFFF 00FF	0-31
Colors Unused	0000 0000 to FFFF 00FF	32-39
Hardcopy colors	0000 to 0FFF	40-59
Number of maps	1 to 20 (1 to 14 hex)	60
Map ID numbers	130 to 198 (82 to C6 hex)	61,65,69,...137
Color Index	1 to 12 (1 to C hex)	62,66,70,...138
Texture	0000 0000 to FFFF 0000	63-63,67-68,71-72,...139-140

13-3.10 Special Symbol Font Definitions (Category 16).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,^{***1},16,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (enter zero or a multiple of 64 to make all data accessible).

1. NOTE: Second Password

Table 13 - 2: Background Map Graphic Screen Colors and Mapping to Quarter Screen Hardcopy Color

Graphic Screen Or Full Screen Hardcopy Color <u>Table Color No. *</u>	Table Halfword Offset <u>(Graphic Screen)</u>	Quarter Screen Hardcopy Color <u>Mapping *** Color No.</u>
must be black **	0,1	must be black **
1	2,3	1
2	4,5	2
3	6,7	3
must be black **	8,9	must be black **
4	10,11	1
5	12,13	2
6	14,15	3
must be black **	16,17	must be black **
7	18,19	1
8	20,21	2
9	22,23	3
must be black **	24,25	must be black **
10	26,27	1
11	28,29	2
12	30,31	3
*This number will be used in another table to identify maps with the actual color definitions contained in this table.		
**Black is 0000 0000 (two halfwords) for screen color definitions (0000 for hardcopy).		
***The map colors displayed in quarter screen will display in these colors on a quarter screen hardcopy. These colors are defined in halfwords 40-59 for hardcopy (sixteen colors for full screen and four colors for quarter screen).		

Table 13 - 3: Background Map Identification Numbers

MAP ID (hex)	DESCRIPTION
132 (84)	POLAR GRID
136 (88)	LFM GRID
140 (8C)	RANGE RING
142 (8E)	RIVER BASIN
144 (90)	RIVER
146 (92)	AIRWAY LOW
148 (94)	AIRWAY HIGH
152 (98)	COUNTY
156 (9C)	STATE LAT/LON
160 (A0)	AIRPORT
164 (A4)	RDA SITE
172 (AC)	HIGHWAY
176 (B0)	NAVIGATIONAL AID
182 (B6)	WARNING AREA
184 (B8)	MILITARY OPERATIONS AREA
188 (BC)	RESTRICTED AREA
192 (C0)	PROHIBITED AREA
194 (C2)	RADAR SITES
196 (C4)	COUNTY NAME
198 (C6)	CITY
Map ID numbers 130-198 are valid although the above 20 listed map numbers are the only map numbers that are currently defined.	

Defaults: None.

Adaptation

Data

Category

Number: 16

Maximum

Number of

Halfwords

Offset: 383 (decimal)

Operation: This category supplies the definitions of the 64 special graphic symbols (characters) accessible through the graphic tablet. This category is broken down into 64 sets of six halfwords, each set defining one graphic symbol. The special symbol selection on the graphic tablet corresponds to the position of the definition in adaptation data (e.g., the

first definition, halfword 0-5, is graphic symbol number one). This is the graphic symbol in the lower left of the tablet special symbol area.

The six halfwords of data for each symbol represent a font matrix. The font matrix is composed of 96 pixels arranged in eight columns and 12 rows (see [Figure 13-1. Font Matrix](#)). The only displayable pixels in the font matrix are the upper left seven (across) by nine (down) pixels (see [Figure 13-2. Displayable Area](#)). The actual graphic symbol definition is done by turning on (represented by a "1") or off (represented by a "0") pixels in the 7 x 9 area. Once it has been decided which pixels are to be on or off, each horizontal row must be converted into a binary number. This is done by using a "0" for every pixel that is off and a "1" for every pixel that is on, e.g.:

0	1	2	3	4	5	6	7
0	0	0	1	0	0	0	0

Note that bit 7 must be zero since it is non-displayable. The above example would turn on the fourth pixel from the left. [Figure 13-3. Special Character Font Conversions](#) gives an example of a plus sign and how it would be converted.

The binary numbers must now be converted into hexadecimal numbers so that they can be entered onto the edit screen. Every two rows of the font matrix equal one halfword. Therefore, [Figure 13-3. Special Character Font Conversions](#) would be converted into the following hexadecimal values:

1010 1010 FE10 1010 1000 0000

row 1 row 2

The above hexadecimal values are those that would be entered into adaptation data using the edit screen to define the plus sign.

Note:

Once the special symbol fonts have been defined, they must be read into the graphic subsystem. This is done by displaying test pattern number 9 or reinitializing the graphics. Displaying test pattern number 9 will also display all of the special symbol fonts.

8 x 12 PIXELS

	1	2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Figure 13-1. Font Matrix

7 x 9 PIXELS

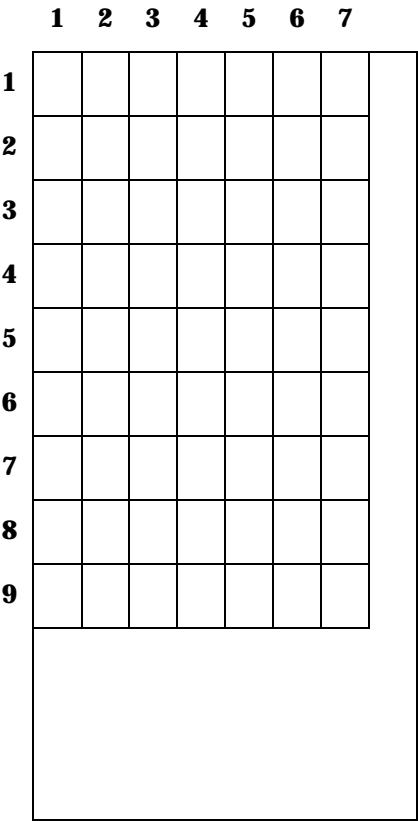


Figure 13-2. Displayable Area

	1	2	3	4	5	6	7		Binary Conversion	Hexadecimal Conversion
1				/					0 0 0 1 0 0 0 0	10
2				/					0 0 0 1 0 0 0 0	10
3				/					0 0 0 1 0 0 0 0	10
4				/					0 0 0 1 0 0 0 0	10
5	/	/	/	/	/	/	/	/	1 1 1 1 1 1 1 0	FE
6				/					0 0 0 1 0 0 0 0	10
7				/					0 0 0 1 0 0 0 0	10
8				/					0 0 0 1 0 0 0 0	10
9				/					0 0 0 1 0 0 0 0	10
									0 0 0 0 0 0 0 0	00
									0 0 0 0 0 0 0 0	00
									0 0 0 0 0 0 0 0	00

Figure 13-3. Special Character Font Conversions

The first character defined must be a blank; therefore, offsets 0-5 must be zero.

13-3.11 Graphic Tablet Selection to Function Assignments (Category 17).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,^{***1}17,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (enter zero or a multiple of 64 to access all the data).

Defaults: None.

Adaptation

Data

Category

Number: 17

Maximum

Number of

Halfwords

Offset: 296 (decimal)

Operation:

The Graphic Tablet Selection to Function Assignments table assigns the actual graphic tablet functions to the graphic tablet boxes. Function numbers identify the actual function to be performed or, in some cases, characters or symbols as shown in Table XIV. Graphic tablet box numbers ([Figure 13-4. Graphic Tablet Box Numbers](#)) identify areas on the graphic tablet. This adaptation data category determines what function will be executed when a given graphic tablet box is selected. Halfwords 0-296 are the only valid halfwords for this category. Offset 297 is used for boundary alignment and should not be edited.

Halfword 0 contains the number of boxes on the graphic tablet. This number should not be edited at a PUP because it includes all boxes, used or not. Each box on the graphic tablet is assigned a box number (see [Figure 13-4. Graphic Tablet Box Numbers](#)). The tablet box number corresponds to the halfword offset in this table (e.g., box number 1 is halfword offset number 1). The content of each halfword (1-296) is the function number assigned to that box. These are normally not duplicated. See Table XIV for a list of function numbers and their meanings. The function numbers in this table are shown in decimal.

1. NOTE: Second Password

206	207	208	209	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	193	194	195	196	197	
204	205	219	220	221	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	188	189	190	191	192
202	203	216	217	218	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	183	184	185	186	187
200	201	213	214	215	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	178	179	180	181	182
198	199	210	211	212	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	173	174	175	176	177
112																			168	169	170	171	172	
111																			163	164	165	166	167	
110																			158	159	160	161	162	
109																			153	154	155	156	157	
108																			148	149	150	151	152	
107																			143	144	145	146	147	
106																			138	139	140	140	142	
105																			133	134	135	136	137	
104																			128	129	130	131	132	
103																			123	124	125	126	127	
102																			118	119	120	121	122	
101																			113	114	115	116	117	
100																								
99																								
98																								
97																								
22	23	24			85	86	87	88	89	90	91	92	93	94	95	96								
19	20	21			73	74	75	76	77	78	79	80	81	82	83	84								
16	17	18			61	62	63	64	65	66	67	68	69	70	71	72								
13	14	15			49	50	51	52	53	54	55	56	57	58	59	60								
7	8	9			37	38	39	40	41	42	43	44	45	46	47	48								
4	5	6			25	26	27	28	29	30	31	32	33	34	35	36								
1	2	3																						

Figure 13-4. Graphic Tablet Box Numbers

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
0	UNDEFINED FUNCTION
1	CANCEL EDIT
2	EXIT EDIT AND SAVE
3	HIGH DETAIL
4	EDIT ALERT AREAS
5	DELETE ALERT BOX
6	ADD ALERT BOX
7	EDIT MAP
8	EDIT ANNOTATIONS
9	START ERASE
10	END ERASE
11	1 !
12	2 @
13	3 #
14	4 \$
15	5 %
16	6
17	7 &
18	8 *
19	9 (
20	0)
21	= +
22	BACK SPACE
23	Q
24	W
25	E
26	R
27	T
28	Y
29	U
30	I
31	O

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
32	P
33	— ' -
34	RETURN
35	A
36	S
37	D
38	F
39	G
40	H
41	J
42	K
43	L
44	; :
45	' "
46	UPPER SHIFT
47	Z
48	X
49	C
50	V
51	B
52	N
53	M
54	, <
55	. >
56	/ ?
57	SPACE
58	LOWER SHIFT
59	S1 S33
60	S2 S34
61	S3 S35
62	S4 S36
63	S5 S37

NOTE: Special Symbol Fonts (S1 through (S64) are defined in
Adaptation Data Category 16 (See 13.3.11)

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
64	S6 S38
65	S7 S39
66	S8 S40
67	S9 S41
68	S10 S42
69	S11 S43
70	S12 S44
71	S13 S45
72	S14 S46
73	S15 S47
74	S16 S48
75	S17 S49
76	S18 S50
77	S19 S51
78	S20 S52
79	S21 S53
80	S22 S54
81	S23 S55
82	S24 S56
83	S25 S57
84	S26 S58
85	S27 S59
86	S28 S60
87	S29 S61
88	S30 S62
89	S31 S63
90	S32 S64
91	UF1
92	UF2
93	UF3
94	UF4
95	UF5

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
96	UF6
97	UF7
98	UF8
99	UF9
100	UF10
101	UF11
102	UF12
103	UF13
104	UF14
105	UF15
106	UF16
107	UF17
108	UF18
109	UF19
110	UF20
111	UF21
112	UF22
113	UF23
114	UF24
115	UF25
116	UF26
117	UF27
118	UF28
119	UF29
120	UF30
121	STORM DIRECTION
122	CONTOUR INTERVAL
123	CANCEL - HELP
124	RPG
125	CENTER RANGE
126	CENTER AZIMUTH
127	REPEAT COUNT
128	ELEVATION ANGLE

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
129	TIME
130	TIME LAPSE RESUME/HALT
131	TIME LAPSE 1
132	TIME LAPSE 2
133	TIME LAPSE 3
134	unused
135	AUTO RESUME/HALT
136	SPEED UP
137	SPEED DOWN
138	FRAME FORWARD
139	FRAME BACK
140	RECENTER MAGNIFY 1X
141	RECENTER MAGNIFY 2X
142	RECENTER MAGNIFY 4X
143	RECENTER MAGNIFY 8X
144	FULL SCREEN
145	QUADRANT 1
146	QUADRANT 2
147	QUADRANT 3
148	QUADRANT 4
149	SEND RPG REQUEST
150	FILTER
151	COMBINE UP
152	COMBINE DOWN
153	CURSOR HOME
154	ACKNOWLEDGE ALERT
155	GRAY SCALE
156	PRESET CENTER
157	CURSOR LINK/UNLINK
158	HARD COPY
159	CURSOR AUTO/MANUAL
160	AZRAN R/LAT LON/AZRAN H
161	CLEAR SCREEN

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
162	PAGE ATTRIBUTE
163	HAIL (OVERLAY)
164	MESOCYCLONE (OVERLAY)
165	TVS (OVERLAY)
166	STORM TRACK (OVERLAY)
167	ATTRIBUTE
168	ALERT AREA 1
169	ALERT AREA 2
170	SWP (OVERLAY)
171	COMBINED SHEAR CONTOUR (OVERLAY)
172	STORM TOTAL PRECIP
173	OVERLAYS OFF/ON
174	OVERLAYS ERASE
175	MAP OVERLAY DELETE
176	STOP BLINK
177	BLANK TIME DATE
178	DEDICATED ASSOCIATED RPG
179	DISPLAY PRODUCT
180	DIAL-UP ASSOCIATED RPG
181	REQUEST MAPS
182	LOWEST ELEVATION
183	8 LEVEL
184	LOW PRIORITY
185	.13 NM
186	16 LEVEL
187	.27 NM
188	HIGH ALTITUDE
189	.54 NM
190	MID ALTITUDE
191	1.1 NM
192	LOW ALTITUDE
193	2.2 NM
194	BASE REFLECTIVITY

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
195	COMPOSITE REFLECTIVITY
196	COMPOSITE REFLECTIVITY CONTOUR
197	REFLECTIVITY CROSS SECTION
198	LAYER COMPOSITE REFLECTIVITY MAX
199	PRODUCT FORWARD
200	DISPLAY QUEUED PRODUCT
201	BASE VELOCITY
202	STORM REL VELOCITY REGION
203	STORM REL VELOCITY MAP
204	VELOCITY CROSS SECTION
205	unused
206	ACKNOWLEDGE PRODUCT
207	CLEAR QUEUE
208	PRODUCT BACK
209	PRODUCT OFF/ON
210	BASE SPECTRUM WIDTH
211	SPECTRUM WIDTH CROSS SECTION
212	COMBINED MOMENT
213	ECHO TOPS CONTOUR
214	REDISPLAY LAST PRODUCT
215	THREE HOUR PRECIP
216	ONE HOUR PRECIP
217	STORM TRACK (PRODUCT)
218	ECHO TOPS
219	MESOCYCLONE (PRODUCT)
220	ALL SWA PRODUCTS
221	SWP (PRODUCT)
222	WEAK ECHO REGION
223	VERTICALLY INTEGRATED LIQUID
224	VAD WIND PROFILE
225	MAPS OFF/ON
226	MAPS ERASE
227	MAPS FOREGROUND/BACKGROUND

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
228	STATE
229	COUNTY
230	HIGHWAY
231	RIVER
232	RIVER BASIN
233	RDA
234	RANGE RING
235	POLAR GRID
236	AIRPORT
237	AIRWAY HIGH
238	AIRWAY LOW
239	NAVAID
240	WARNING AREA
241	MILITARY OPERATIONS AREA
242	RESTRICTED AREA
243	PROHIBITED AREA
244	START LINE
245	END LINE
246	COMBINED SHEAR
247	COMBINED SHEAR CONTOUR
248	SWA REFLECTIVITY
249	SWA WIDTH
250	LFM GRID
251	HAIL (PRODUCT)
252	TVS (PRODUCT)
253	LAYER COMPOSITE REFLECTIVITY AVG
254	unused
255	TRANSFER SCREEN PRODUCT
256	RESTORE DISPLAYED PRODUCT
257	RPG1
258	RPG2
259	RPG3
260	ANNOTATIONS

Table 13 - 4: Graphic Tablet Function Numbers

<u>Function Number</u>	<u>Function Description</u>
261	CANCEL UF
262	DIRECT RPG REQUEST
263	DATE
264	STORM SPEED
265	NEXRAD UNIT STATUS
266	RADAR SITES
267	ELEVATION UP
268	ELEVATION DOWN
269	ADD RECTANGLE
270	DELETE RECTANGLE
271	SWA VELOCITY/SRR
272	SWA SHEAR
273	DEFAULT PARAMETERS
274	COUNTY NAME
275	CITY
276	AZRAN SELECT
277	CURSOR HOME DEFINE
278	MATCH PARAMETERS
279	EDIT RCM PART A
280	EDIT RCM PART C
281	RCM (PRODUCT)
282	BLINK COLOR
283	CURRENT CROSS SECTION
284	VELOCITY AZIMUTH DISPLAY (VAD)
285	VAD ALTITUDE
286	CROSS SECTION SELECT
287	ALL QUADRANTS
288	VR/SHEAR DISPLAY
289	SLICE/DURATION
290	DURATION
291	END HOUR
292	USER SELECTABLE PRECIP
293	CELL TRENDS

Table 13 - 4: Graphic Tablet Function Numbers

Function Number	Function Description
294	LRM AP REMOVED
295	HYBRID SCAN REFLECTIVITY

13-3.12 Overlay Colors (Category 18).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**¹,18,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (usually zero)

Defaults: None.

Adaptation

Data

Category

Number: 18

Maximum

Number of

Halfwords

Offset: 23

Operation: The overlay colors category defines the colors for each overlay (see [Chapter 6 Graphic Display Functions](#) for the list of overlays). The values in this category have been carefully chosen and should not be edited as certain conflicts may occur. This is because these colors are shared among all the overlays and overlay data. Halfwords 0-22 are the only valid halfwords for this category. Halfword 23 is used for boundary alignment and should not be edited. Offset 0 contains the number of overlay colors. This is set to 11 decimal (B hex) and must not be altered.

Halfwords 1-11 contain the color definitions for overlays. Each halfword represents one color. Overlay colors are formatted as follows:

OVD1	+10	Red	Green	Blue
------	-----	-----	-------	------

bit 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Setting OVD1 (bit 0) disables the color and it is displayed as transparent. Setting +10 (bit 1) increases the intensity of the color to 110%. Bits 2-3 contain the red compo-

1. NOTE: Second Password

nent, bits 4-5 contain the green component, and bits 6-7 contain the blue component. Bits 8-15 are unused. The 11 overlay colors (halfwords 1-11) should not have bit 0 set.

Halfwords 12-22 contain the blink state for each color assigned in halfwords 1-11. If the corresponding color in 1-11 is to blink, the blink state for that overlay color defined here should have bit 0 set to a one with the rest of the halfword bits set to zero. If the overlay color is not to blink, the color assigned in this upper set of 11 halfwords should duplicate the color assigned in the lower set (halfwords 1-11) identically.

NOTE: These colors have been carefully selected and should not be edited at the PUP. Because of the complexity of these colors, editing may adversely affect the PUP operation.

13-3.13 Preselected RPGs (Category 23).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,^{***1},23,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (normally enter zero)

Defaults: None.

Adaptation
Data

Category
Number: 23

Maximum
Number of
Halfwords
Offset: 3

Operation: The Preselected RPGs category supplies the three RPG identification numbers (see Category 11) of the Non-associated RPGs which can be selected as a product parameter on the graphic tablet by a single selection. These are labeled RPG 1, RPG 2, and RPG 3. Offsets 0-2 are the only valid halfwords for this category. Offset 3 is used for boundary alignment and should not be edited.

Halfwords 0-2 contain the RPG identification numbers (see Category 6; paragraph [13-3.5 PUP and Associated RPG Identification Numbers \(Category 6\)](#).) that are to be used when RPG 1, 2, or 3 is selected from the graphic tablet. Halfword 0 contains the RPG ID number associated with RPG 1, halfword 1 contains the RPG ID number associated with RPG 2 and halfword 2 contains the RPG ID number associated with RPG 3. The permissible ranges for this category are as follows:

1. NOTE: Second Password

Entry	Range (decimal or hex)	Halfword Offset
RPG 1	1 to 999 (1 to 3E7 hex)	0
RPG 2	1 to 999 (1 to 3E7 hex)	1
RPG 3	1 to 999 (1 to 3E7 hex)	3

These are used primarily to assign neighboring RPGs or, RPGs from which products are frequently requested, to the graphic tablet.

13-3.14 Overload Warning Thresholds (Category 24).

Selection:

Alphanumeric (only):(AD)APTATION DATA,<PASSWORD>,**1,24,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (normally enter zero)

Defaults: None.

Adaptation
Data

Category
Number: 24

Maximum
Number of
Halfwords
Offset: 5

Operation: The Overload Warning Thresholds (included to meet specifications) supply the percentage thresholds for processor, memory, communications, input buffer, storage, and archive measurements for performance monitoring at which a message indicating the overload will be generated and displayed (once every monitor performance period). Halfword 0 contains the processor overload percentage threshold (CPU Utilization), halfword 1 contains the computer memory usage overload percentage threshold, halfword 2 contains the communication overload percentage threshold, halfword 3 contains the input buffer overload percentage threshold, halfword 4 contains the disk storage overload percentage threshold, and halfword 5 contains the archive usage overload percentage threshold.

The permissible values for this category are as follows:

Table Entry	Range (decimal or hex)	Halfword Offset
Processor Overload	50 to 100 (32 to 64 hex)	0
Memory Overload	80 to 100 (50 to 64 hex)	1
Communications Overloads	50 to 100 (32 to 64 hex)	2
Input Buffer Overload	80 to 100 (50 to 64 hex)	3
Disk Storage Overload	60 to 100 (36 to 64 hex)	4
Archive Overload	50 to 100 (32 to 64 hex)	5

It is suggested that Memory Usage, Input Buffer Usage and Disk Storage Usage be ignored since these numbers essentially remain constant. The others really need not be worried about either since the system is designed to handle all possibilities smoothly. The only parameter of any real value, Communication Overload, is more conveniently checked by looking at the number of products load-shed for RPG and PUES on the monitor performance display.

13-3.15 Maps to PUES and Other Users (Category 25).

Selection:

Alphanumeric (only): (AD)APTATION DATA,<PASSWORD>,**1,25,
<No. of halfwords offset>

Active

Environment: Always active.

Options and

Parameters: Number of halfwords offset (normally enter zero).

Defaults: None.

Adaptation
Data

Category

Number: 25

Maximum
Number of
Halfwords
Offset:

37

Operation: The Maps to PUES and Other Users category supplies the background map identification numbers (see [_](#)) of the background maps that are accessible to PUES and Other Users. Halfwords 0-36 are the only valid halfwords for this category. Halfword 37 is used for boundary alignment and should not be edited.

Halfword 0 contains the number of maps accessible to PUES or Other Users. Halfwords 1-18 contain the map identification numbers for maps accessible to PUES. Halfwords 19-37 contain the map identification numbers for maps accessible to Other

1. NOTE: Second Password

Users. Map identification numbers must be listed in sequential, i.e., numerically ascending, order. Zeroes should fill the end of each list after the last map ID; however, no zeroes should be placed between map IDs as this will terminate the list. See [Table 13 - 3: Background Map Identification Numbers](#) for a list of permissible map ID numbers.

The maps listed for PUES will be sent as a set whenever they send a request for maps. Since these go over a 4800 baud line, this could take a considerable amount of time (up to several minutes) if this list is made very large.

The maps listed for Other Users will be sent as a set along with every single set of products sent. This list should normally be made small because of transmission time and storage limitations at Other User sites.

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APPENDIX A

MENUS

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
```

MAIN MENU

COMMAND:
FEEDBACK:

Enter command and press return. For assistance, press the HELP button (F5).

(C)ONTROL
(S)TATUS
(D)ISPLAY
(R)OUTINE PRODUCT SET
(G)EN AND DISTRIBUTE PRODUCTS
(T)IME LAPSE
(A)RCHIVE
(U)SER FUNCTION
(AD)APTATION DATA
(M)ONITOR PERFORMANCE
(H)ELP

UNACKNOWLEDGED ALERTS
ACKNOWLEDGED ALERTS
SYSTEM STATUS

ALPHA PRODUCT QUEUE INDICATOR
RPG PRODUCT REQUEST STATUS

Main Menu

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
```

CONTROL MENU

COMMAND: C,
FEEDBACK:

Enter command.

(REI)NITIALIZE, (G)RAPHICS
(RES)TART PUP
(S)HUTDOWN, (N)ORMAL
, (I)MMEDIATE
(C)OMLINE, (C)ONNECT , <LINE#>
, (D)ISCONNECT, <LINE#>
(T)RAINING MODE, (C)ONNECTED RPG
, (D)ISCONNECTED RPG
, (R)ESUME
, (E)ND [reconnect]
(B)ACKGROUND MAP VERSION *
(WER) PLANE ASSIGNMENT*
(A)UDIBLE ALARM TEST
*Footnote: Enters edit screen at this point.

Control Menu

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1                                PUP SHUTDOWN
2  COMMAND:
3  FEEDBACK:
4
5
6
7
8
9
10
11                                TO RESTART PUP, TYPE:  C,RES
12
13
14
15
16
17
18
19
20
21
22
23
24
```

PUP Shutdown

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1                                BACKGROUND MAP VERSION EDIT SCREEN
2  COMMAND:  C,B
3  FEEDBACK:
4
5  Specify an "O" to use the original map and an "M" to use the modified map.
6
7                                1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 3 3 3
8  MAP NUMBER:  1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2
9                -----
10 VERSION:      O O M O O O M O O O O O M O O O
11
12                                MAP NUMBERS AND MAP NAMES
13                -----
14  1.  State Lat/Lon      9.  Airway Low      17.  County Names
15  2.  County            10.  Navaid          18-32. Not Defined.
16  3.  Highway           11.  Warning Area
17  4.  River             12.  Military Operations Area
18  5.  River Basin       13.  Restricted Area
19  6.  LFM Grid          14.  Prohibited Area
20  7.  Airport           15.  Radar Sites
21  8.  Airway High       16.  City
22
23
24
```

Background Map Version Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1          WER PLANE ASSIGNMENT EDIT SCREEN
2  COMMAND:  C,W
3  FEEDBACK:
4
5  Enter elevation number from 1 (lowest) to 20 (highest) and press RETURN.
6
7          PLANE   PLANE   PLANE   PLANE   PLANE   PLANE   PLANE   PLANE
8          1       2       3       4       5       6       7       8
9          --      --      --      --      --      --      --      --
10         1       2       3       4       5       6       7       8
11
12
13
14
15
16
17
18  NOTE: This determines the WER Plane assignments if a WER Product request is
19        made from the alphanumeric terminal, or the defaults for a graphic
20        screen request for WER.  Blanks may be entered for fewer than 8 plane
21        assignments.
22
23
24
```

Wer Plane Assignment Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1          STATUS MENU
2  COMMAND:  S,
3  FEEDBACK:
4
5  Enter command.
6  (N)EXRAD UNIT
7  (C)OMMUNICATIONS
8  (T)YPES OF PRODUCTS AVAILABLE IN PUP DATABASE
9  (P)RODUCTS IN PUP DATABASE, <prod-id#>
10          , (D)ISPLAY, <LINE#>, <scr-quad> *
11          , (DEL)ETE, <LINE#>  *
12  (E)ARLIEST TIME IN THE DATABASE
13  (R)PG PRODUCTS AVAILABLE, (D)ISPLAY LAST
14          , (R)EQUEST NEW
15  (S)YSTEM
16  (A)RCHIVE
17  (B)ACKGROUND MAP FILES
18  (A)LERTS
19  (CA)NCEL ALERT, <LINE#> *
20          , (A)LL *
21  *Footnote: List must be on display before entering command.
22
23
24
```

Status Menu

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      NEXRAD UNIT STATUS
2  COMMAND:  S,N
3  FEEDBACK: EXECUTED - S,N
4
5  TIME RCV'D FROM      NEW PRODUCT STATUS:  AVAILABLE
6  RPG: 08:42
7
8      BASE DATA ENABLED:      REF  VEL  SW
9  ELEVATION      OPERATIONAL MODE/VCP:  B   21
10 ANGLES:      9
11
12      DED. RPG COMM:  ENABLED  CONNECTED
13      0.5
14      1.5      RPG AVAILABILITY: AVAIL  ON-LINE
15      2.4      RPG NARROWBAND:
16      3.4      RPG SOFTWARE:      OPERATE
17      4.3      ALARMS:
18      6.0
19      9.9      RDA AVAILABILITY: AVAIL  ON-LINE
20      14.8     RDA SOFTWARE:      OPERATE
21      19.5     DELTA SYS. CAL.:  -8.25 dBZ
22      ALARMS:      TOWER/UTIL
23
24
```

Nexrad Unit Status

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      COMMUNICATIONS LINE STATUS
2  COMMAND:  S,
3  FEEDBACK: EXECUTED - S,C
4
5  Line #  Description      Last status message reported      Status  RPG
6  -----  -----
7  1 J01 : Assoc. RPG      04/0951 Line  1 Hardware Dscnct      ENA  FLD
8  2 J02 : Assoc. RPG
9  3 J03 : Non-as. RPG      04/0951 Line  3 ENABLED      ENA  DSC
10 4 XXXX: Unused
11 5 XXXX: Unused
12 6 XXXX: Unused
13 7 XXXX: Unused
14 8 XXXX: Unused
15 9      : Unused
16 10     : Unused
17
18 Operator Selected  ENA - Enabled      Hardware CON - Connected
19 Status:          (Req. Connect)      Status:  DSC - Disconnected
20                DSA - Disabled      CP - Connect Pending
21                (Req. Disconnect)    DP - Disconnect Pending
22                FLD - Failed
23
24
```

Communications Line Status

0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1	TYPES OF PRODUCTS AVAILABLE IN PUP DATABASE											Page 1 of 1	
2	COMMAND: S,												
3	FEEDBACK: EXECUTED - S,T												
4													
5	PROD	PROD	DTA			NO.		PROD	PROD	DTA		NO.	
6	ID#	NAME	LVL	RES	LAYER	PRODS*		ID#	NAME	LVL	RES	LAYER	PRODS*
7	----	----	---	---	-----	-----		----	----	---	---	-----	-----
8	16	R	8	.54		7		55	SRR				1
9	19	R	16	.54		2		63	LRA			L	2
10	21	R	16	2.2		2		67	APR				2
11	22	V	8	.13		2		73	UAM				26
12	24	V	8	.54		1		87	CS				5
13	27	V	16	.54		1		88	CSC				5
14	28	SW	8	.13		2							
15	30	SW	8	.54		2							
16	42	ETC				1							
17	43	SWR				2							
18	44	SWV				2							
19	45	SWW				2							
20	46	SWS				2							
21	TOTAL PRODUCTS IN DATABASE*: 69						*PAIRED ALPHA PRODUCTS NOT COUNTED						
22													
23													
24													

Types Of Products Available In Pup Database

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PRODUCTS IN PUP DATABASE FOR PRODUCT 16

Page 1 of 1

COMMAND: S,

FEEDBACK: EXECUTED - S,P,16

CMDS: [EACH CMD MUST BE PRECEDED BY "(S)TATUS, (P)RODUCTS IN PUP DATABASE,"]

(D)ISPLAY, <LINE#>, <scr-quad> (DEL)ETE, <LINE#>

PRODUCT NAME: R DATA LEVELS: 8 RESOLUTION: .54

LINE	SLICE	PARAM 1	PARAM 2	RPG	TIME	DATE
----	-----	-----	-----	----	-----	-----
1	0.2			KOUN	18:23	04/30/78
2	0.2			KOUN	18:16	04/30/78
3	1.5			KOUN	18:10	04/30/78
4	0.2			KOUN	18:10	04/30/78
5	1.5			KOUN	18:04	04/30/78
6	0.2			KOUN	18:04	04/30/78
7	0.2			KOUN	17:58	04/30/78

Products In Pup Database For Product 16

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
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```

                                EARLIEST PRODUCT IN PUP DATABASE
COMMAND:  S,
FEEDBACK: EXECUTED - S,E

      PROD  DTA
      NAME  LVL  RES  SLICE  PARAM 1  PARAM 2  RPG  TIME  DATE
      ----  ---  ---  ----  -
      R      8  .54   0.2                KOUN  17:58  04/30/78
```

Earliest Product In Pup Database

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
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```

                                RPG PRODUCTS AVAILABLE (16:30 11/19/85)                                Page 1 of 1
COMMAND:  S,
FEEDBACK: EXECUTED - S,R,D

      PROD  PROD  DTA
      ID#  NAME  LVL  RES  SLICE  PARAM1  PARAM2  PARAM3  PARAM4
      ----  ---  ---  ---  ----  -
      16    R      8    4   10.5
      19    R      8    .5  10.5
      23    V     16   .25  8.0
      32    SCR                6.3
      38    CR
      42    ETC                120
      49    CM                90    5
      53    WER                350   50
      56    SRM                80    15
```

RPG Products Available

00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1	SYSTEM STATUS FILE	Page 1 of 35
2	COMMAND: S,	
3	FEEDBACK: EXECUTED - S,S	
4		
5	02/04/92 09:51	GRAPHICS RESET
6	02/04/92 09:51	GRAPHIC SYSTEM TIMEOUT
7	02/04/92 09:51	OTHER USER LINE ENABLED
8	02/04/92 09:51	PUES LINE CONNECT PENDING
9	02/04/92 09:51	LINE 3 ENABLED
10	02/04/92 09:51	PUP STARTUP V5.1F
11	02/04/92 09:12	OTHER USER LINE ENABLED
12	02/04/92 09:12	PUES LINE CONNECT PENDING
13	02/04/92 09:12	LINE 3 ENABLED
14	02/04/92 09:12	PUP STARTUP V5.1F
15	02/04/92 09:01	LINE 1 UNREQUESTED DSCNCT
16	02/04/92 09:01	RPG NRRWBND = CMND DSCNCT
17	02/04/92 09:01	RPG SOFT= SHUTDOWN
18	02/04/92 09:01	RPG AVAL= CMND SHTDN
19	02/04/92 08:55	RPG AVAL= ON-LINE
20	02/04/92 08:55	RPG ALERT THRESHOLDS RCVD.
21	02/04/92 08:55	VOL COV PAT= 21
22		
23		
24		

System Status File

00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1	ARCHIVE STATUS	
2	COMMAND: S,	
3	FEEDBACK: EXECUTED - S,A	
4		
5		
6	OPTICAL	
7	DISK UNIT	
8	UTILIZATION NUMBER STATUS	
9	-----	-----
10	OPT1: 22%	1 AUTO ARCHIVE INCL ONE TIME AND MAPS REQUEST ACTIVE
11		AUTO ARCHIVE STATUS MESSAGES REQUEST ACTIVE
12		
13	OPT2: N/A	2 ARCHIVE NOT ACTIVE
14		
15		
16	TAPE	MONITOR PERFORMANCE NOT ACTIVE
17		
18		
19		
20		
21		
22		
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24		

Archive Status

00000000011111111122222222233333333334444444445555555556666666667777777778
 1234567890123456789012345678901234567890123456789012345678901234567890

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ALERT STATUS

Page 1 of 1

COMMAND: S,

FEEDBACK: EXECUTED - S,AL

VOLUME

#

DA/TIME

AA#/GRP

CATEGORY

THR

THR

THR

AZ

RAN

ID

ACK

1 30/1823 1/VOL PRB SV HAIL 3 30% 30 326 55 F3 N

2 30/1804 1/VOL PROB HAIL 2 20% 100 320 57 C0 N

3 30/1823 1/FOR PROB HAIL 1 10% 100 326 55 F3 N

4 30/1823 1/GRI VELOCITY 1 15 kt 123 72 14 N

5 30/1810 2/GRI VIL 2 35kg/km2 37 322 49 N

6 30/1804 2/VOL MAX STM REF 1 35dBZ 58 330 26 A0 N

7 30/1804 2/VOL STORM TOP 1 20Kft 50 306 124 D0 N

ALERTS: 1) VA VH FH GV 2) GL VR VT

Alert Status

00000000011111111122222222233333333334444444445555555556666666667777777778
 1234567890123456789012345678901234567890123456789012345678901234567890

1	DISPLAY MENU	
2	COMMAND: D,	
3	FEEDBACK:	
4		
5	Enter command.	
6		
7	(A)LPHANUMERIC PRODUCT,	<prod-name> *
8	(G)RAPHIC PRODUCT,	<prod-name> *
9	(GP)GRAPHIC AND PAIRED ALPHA,	<prod-name> *
10	(P)AIRED ALPHANUMERIC PRODUCT,	<screen>
11	(N)EXT QUEUED,	(A)LPHANUMERIC
12	,	(G)RAPHIC, <screen>
13	(C)LEAR QUEUE,	(A)LPHANUMERIC
14	,	(G)RAPHIC
15	(AU)TO DISPLAY,	(A)LPHANUMERIC
16	,	(G)RAPHIC
17	(H)ALT AUTO DISPLAY GRAPHIC	
18	(T)EST PATTERN,	<id#>, <screen>
19		
20	*Footnote: Product parameter edit screen entered here.	
21		
22		
23		
24		

Display Menu

0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1	DISPLAY ALPHANUMERIC PRODUCT EDIT SCREEN						
2	COMMAND: D,A,FTM						
3	FEEDBACK:						
4							
5	Edit product parameters and press RETURN to request product.						
6							
7	PROD					REQ	RPT
8	NAME		RPG	TIME	DATE	PRI	CNT
9	----		----	-----	-----	---	---
10	FTM		KATL	14:23	09/18/84	H	1
11							
12							
13							
14							
15							
16							
17							
18							
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23							
24							

Display Alphanumeric Product Edit Screen

0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1	DISPLAY GRAPHIC PRODUCT EDIT SCREEN											
2	COMMAND: D,G,R											
3	FEEDBACK:											
4												
5	Edit product parameters and press RETURN to request product.											
6												
7	PROD	DTA								REQ	RPT	REQ
8	NAME	LVL	RES	SLICE	PARAM 1	PARAM 2	RPG	TIME	DATE	SCR	PRI	CNT MAP
9	----	---	---	-----	-----	-----	----	-----	-----	---	---	---
10	R	16	22	10.5			KATL	14:23	09/18/90	L	H	1 N
11												
12												
13												
14												
15												
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17												
18												
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23												
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Display Graphic Product Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      DISPLAY GRAPHIC AND ALPHA PRODUCT EDIT SCREEN
2  COMMAND:  D,GP,STI
3  FEEDBACK:
4
5  Edit product parameters and press RETURN to request product.
6
7  PROD
8  NAME                      RPG    TIME    DATE    SCR    REQ  RPT REQ
9  ----                      ---    ---    ---    ---    ---  --- ---
10 STI                      KATL   14:23   09/18/84   L     H    1   N
11
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```

Display Graphic and Alpha Product Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      ROUTINE PRODUCT SET MENU
2  COMMAND:  R,
3  FEEDBACK:
4
5  Enter command.
6
7  (E)DIT ROUTINE PRODUCT SET
8  (L)EFT AUTO DISPLAY RATE *, <SECONDS>
9  (R)IGHT AUTO DISPLAY RATE *, <SECONDS>
10 (RE)PLACE WITH ADAPTATION VERSION, <rps-id>
11
12
13 *Footnote:  Current rate displayed if command ended here.
14
15
16
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```

Routine Product Set Menu

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

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ROUTINE PRODUCT SET EDIT SCREEN

Page 1 of 2

COMMAND:

FEEDBACK:

(M)ODIFY, <LINE#>, <prod-name> (D)ELETE, <LINE#>

(I)NSERT, <LINE#>, <PROD-NAME> (C)ANCELL ALL

Press function key F1 or F2 to exit and to save all changes.

PROD DTA

LN NAME LVL RES SLICE PARAM 1 PARAM 2 DSP FRQ PRI USR DIST ARC

-- ---

(e d i t l i n e)

-- ---

1 R 8 4 10.5 R 1 H N N Y

2 SW 8 .5 10.5 L 1 H N N Y

3 V 16 .25 8.0 L 1 H N N Y

4 CR 4 2 H Y Y N

5 ET 4 L Y Y N

6 V 16 .25 10.5 L 1 H N N Y

7 R 16 4 10.5 R 1 H N N Y

8 SS 1 L N N N

Routine Product Set Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

1	GEN AND DISTRIBUTE PRODUCTS MENU												
2	COMMAND: G,												
3	FEEDBACK:												
4													
5	Enter command.												
6	(R)CM, (E)DIT, (B) [Edit all Part B]												
7	, (C) [Edit end of Part C]												
8	, (D)ISPLAY, (A) [Edit version]												
9	, (B) [Edit version]												
10	, (C) [Edit version]												
11	(G)ENERATE MESSAGE												
12	(D)IST MSG, (P)UES *, <time>, <date>												
13	, (R)PG *, <time>, <date>, (A)LL												
14	, <LINE#>												
15	, (E)NABLE OTH USR *, <time>, <date>												
16	, (D)ISABLE OTH USR												
17	(S)END, (A)NNOTATIONS, <PROD-NAME> **												
18	, (R)CM												
19	*Footnote: Displays list of currently available PUP Text Messages if command												
20	ends at this point.												
21	**Footnote: Enters edit screen at this point.												
22	—												
23	—												
24	—												

Gen and Distribute Products Menu


0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

RCM PART B (13:30 12/28/88)
Page 1 of 1

COMMAND:

FEEDBACK:

First line of Radar Coded Message Part B being displayed.



Last displayable line of the Radar Coded Message Part B.

RCM Part B


0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

RCM PART C (13:30 12/28/88)
Page 1 of n

COMMAND:

FEEDBACK:

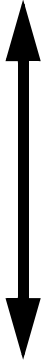
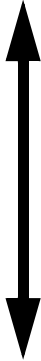
First line of Radar Coded Message Part C being displayed.



Last displayable line of the Radar Coded Message Part C.

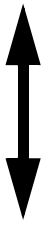
RCM Part C

00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1	RCM PART A (13:30 12/28/88)	Page 1 of n
2	COMMAND:	
3	FEEDBACK:	
4		
5	First line of Radar Coded Message Part A being displayed.	
6		
7		
8		
9		
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25		
26	Last displayable line of the Radar Coded Message Part A.	

RCM Part A

00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1	RCM PART B (13:30 12/28/88) EDIT SCREEN
2	COMMAND:
3	FEEDBACK:
4	
5	(M)ODIFY (C)ANCEL CURRENT EDIT [Redisplay original]
6	
7	Press function key F1 or F2 to exit and to save all changes. Press return to
8	allow command entries.
9	
10	First line of Radar Coded Message Part B being edited
11	
12	
13	
14	
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16	
17	
18	
19	
20	
21	Last editable line of the Radar Coded Message Part B
22	
23	
24	

RCM Part B

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

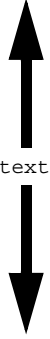
1          RCM PART C   (13:30 12/28/88) EDIT SCREEN          Page 1 of 1
2  COMMAND:
3  FEEDBACK:
4
5  (M)ODIFY      (S)AVE SEND RCM      (C)ANCEL CURRENT EDIT [Redisplay original].
6
7  Press function key F1 or F2 to exit and to save all changes. Press return to
8  allow command entries.
9
10 /EYE
11 /CNTR
12 /REM:
13
14
15
16
17
18
19 /EDITED:
20 /ENDCC
21 /ENDALL
22
23
24
```

RCM Part C

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1          PUP TEXT MESSAGE EDIT SCREEN          Page 1 of 1
2  COMMAND:  G,G
3  FEEDBACK:
4
5  This is a free text message being generated.
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21 This is the last editable line of the free text message.
22
23
24
```



PUP Text Message Edit Screen

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1          SEND ANNOTATIONS EDIT SCREEN
2  COMMAND:  G,S,A,R
3  FEEDBACK:
4
5  Edit product parameters and press RETURN to send annotations to associated RPG.
6
7  PROD  DTA
8  NAME  LVL  RES  SLICE  PARAM 1  PARAM 2  TIME    DATE
9  ----  ---  ---  ----  -
10 R      16  2.2   0.5                14:23  09/18/90
11
12
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24
```

Send Annotations Edit Screen

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1          TIME LAPSE MENU
2  COMMAND:  T,
3  FEEDBACK:
4
5  Enter command.
6
7  (DI)SPLAY,  <TL#>, <screen>, <rate>
8  (DE)FINE *, <TL#> *, <prod-name> *
9  (DD)DEFINE AND DISPLAY, <screen>, <rate> *, <TL#> *, <prod-name> *
10 (H)ALT
11 (R)ESUME
12
13 *Footnote:  Time Lapse (TL) Define edit screen displayed if command line ends
14             here.  May be used for examination as well as editing.
15
16
17
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24
```

Time Lapse Menu


```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1                                     TIME LAPSE DEFINE EDIT SCREEN
2  COMMAND:  T,DE,
3  FEEDBACK:
4
5  Enter <TL#>,<prod-name>
6
7  T  PROD  DTA
8  L  NAME  LVL  RES  SLICE  PARAM 1  PARAM 2  RPG  START  START  MAX  CONT
9  -  ----  ---  ---  -----  -----  -----  ---  -----  -----  ---  -----
10                                     ( e d i t   l i n e )
11  -  ----  ---  ---  -----  -----  -----  ---  -----  -----  ---  -----
12  1  R      8    1   10.5      14:45  04/29/90  72    Y
13  2  V      8   .25  10.5      14:50  04/29/90  36    Y
14  3  ET
15
16
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24
```

Time Lapse Define Edit Screen

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1                                     ARCHIVE MENU           (Archive Device Number: 1)
2  COMMAND:  A,
3  FEEDBACK:
4
5  Enter command.
6  (A)PPEND,      }{ (D)ATABASE [PUP product database capacity]
7  (R)EAD,        }{ (P)RODUCTS, <start-time>,<start-date>,<end-time>,<end-date>
8                  }{ (O)NE PRODUCT, <PROD-NAME> [enters edit screen]
9                  }{ (R)ECEIVED BACKGROUND MAPS, <RPG>
10 (A)PPEND, (A)UTO ARCHIVE, (I)NCLUDE ONE TIME PRODUCTS, (I)NCLUDE BKND MAPS
11                                     , (N)O BKND MAPS
12                                     , (N)O ONE TIME PRODUCTS
13                                     , (S)TATUS MESSAGES
14 (A)PPEND, (B)ACKGROUND MAP FILE, <file no.>
15 (R)EAD,    (B)ACKGROUND MAP FILE, <RPG>, <file no.>
16 (R)EAD,    (S)TATUS INDEX, <start-time>,<start-date>
17 (M)ONITOR PERFORMANCE
18 (R)ESUME
19 (C)ANCEL, (A)ll or (P)ROD & MAP AUTO ARCHIVE or (S)TATUS MSG AUTO ARCHIVE
20 (S)ELECT, <archive-device-number>
21 (P)AUSE AUTO ARCHIVE
22
23
24
```

Archive Menu

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1          ARCHIVE ONE PRODUCT EDIT SCREEN
2  COMMAND:  A,A,O,R
3  FEEDBACK:
4
5  Edit product parameters and press RETURN to request product.
6
7  PROD  DTA
8  NAME  LVL  RES  SLICE  PARAM 1  PARAM 2  RPG  TIME  DATE
9  ----  ---  ---  ----  -
10 R      16  .54   0.5              KATL  14:03  09/18/90
11
12
13
14
15
16
17
18
19
20
21
22
23
24
```

Archive One Product Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1          READ ONE ARCHIVED PRODUCT EDIT SCREEN
2  COMMAND:  A,R,O,R
3  FEEDBACK:
4
5  Edit product parameters and press RETURN to read the product.
6
7  PROD  DTA
8  NAME  LVL  RES  SLICE  TIME  DATE
9  ----  ---  ---  ----  -
10 R      16   4   10.5  14:03  09/18/90
11
12
13
14
15
16
17
18
19
20
21
22
23
24
```

Read One Archived Product Edit Screen

0000000001111111112222222222333333333344444444445555555555666666666677777777778
 1234567890123456789012345678901234567890123456789012345678901234567890

```

1          ARCHIVE INDEX OF STATUS FOR PUP ID: 000
2  COMMAND:
3  FEEDBACK: EXECUTED - A,R,S,<00:00>,<01/01/70>
4  Enter Command: (D)ISPLAY STATUS, <first entry no.>
5  *Note: Select entries from the list below to display status messages starting
6  with the corresponding date/time. 10 entries will be included beginning with
7  the selected entry.
8
9
10
11  Entry    Date    Time    Entry    Date    Time    Entry    Date    Time
12  ----
13  1  01/05/93  15:10   12  01/09/93  11:36   23  01/13/93  13:34
14  2  01/05/93  16:14   13  01/09/93  15:47   24  01/13/93  16:01
15  3  01/05/93  18:43   14  01/09/93  16:10   25  01/14/93  12:22
16  4  01/06/93  11:13   15  01/10/93  10:56   26  01/14/93  16:33
17  5  01/06/93  15:10   16  01/10/93  11:40   27  01/15/93  15:45
18  6  01/06/93  21:02   17  01/10/93  13:33   28  01/15/93  18:01
19  7  01/07/93  10:09   18  01/11/93  15:55   29  01/15/93  19:55
20  8  01/07/93  15:10   19  01/11/93  16:45   30  01/15/93  21:01
21  9  01/08/93  12:33   20  01/11/93  19:09   31  01/15/93  22:42
22 10  01/08/93  15:10   21  01/12/93  17:44   32  01/15/93  23:59
23 11  01/08/93  19:55   22  01/12/93  22:38
24

```

Archive Index Of Status For PUP ID: 000

0000000001111111112222222222333333333344444444445555555555666666666677777777778
 1234567890123456789012345678901234567890123456789012345678901234567890

```

1          ARCHIVED STATUS MESSAGES FOR PUP ID: 000          Page 1 of 11
2  COMMAND:
3  FEEDBACK:
4
5  01/05/93 15:10  GRAPHICS RESET
6  01/05/93 15:12  GRAPHIC SYSTEM TIMEOUT
7  01/05/93 15:13  OTHER USER LINE ENABLED
8  01/05/93 15:14  PUES LINE CONNECT PENDING
9  01/05/93 15:16  LINE 3 ENABLED
10 01/05/93 17:51  PUP STARTUP V5.1F
11 01/05/93 17:52  OTHER USER LINE ENABLED
12 01/05/93 17:52  PUES LINE CONNECT PENDING
13 01/05/93 17:53  LINE 3 ENABLED
14 01/05/93 20:12  PUP STARTUP V5.1F
15 01/05/93 20:12  LINE 1 UNREQUESTED DSCNCT
16 01/05/93 20:13  RPG NRRWBND = CMND DSCNCT
17 01/05/93 20:13  RPG SOFT= SHUTDOWN
18 01/05/93 20:13  RPG AVAL= CMND SHTDN
19 01/05/93 20:15  RPG AVAL= ON-LINE
20 01/05/93 20:15  RPG ALERT THRESHOLDS RCVD.
21 01/05/93 20:16  VOL COV PAT= 21
22
23
24

```

Archived Status Messages For PUP ID: 000

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```
1                                     BACKGROUND MAP FILES
2  COMMAND:   A,A,B
3  FEEDBACK:
4
5  Enter a background map number:
6
7      MAP#      RPG      MAP#      RPG      MAP#      RPG
8      ----      -
9      1*      KSDS      11      ****      21      KLVX
10     2      KJGX      12      ****
11     3      KMLB      13      ****
12     4      KTWX      14      KMRX
13     5      ****      15      ****
14     6      ****      16      ****
15     7      ****      17      KLWX
16     8      ****      18      ****
17     9      ****      19      ****
18    10      KTBW      20      ****
19
20 *Footnote:  Map#1 is the associated RPG map.
21
22
23
24
```

Note: This screen can be displayed by one of the following commands: A,A,B or A,R,B,<RPG> or S,B. If this screen is displayed with the S,B command, line 5 is not displayed.

Background Map Files

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```
1                                     USER FUNCTION MENU
2  COMMAND:   U,
3  FEEDBACK:
4
5  Enter command.
6
7  (E)XECUTE, <UF#>, <rpg>
8  (C)ANCEL EXECUTION
9  (D)EFINE, <UF#>, <title>
10 (EN)D DEFINE AND EXAMINE *, (E)ND UF
11                                , <UF#>  [User Function # to receive control]
12 (W)AIT, <SECONDS>
13 (EXA)MINE, (T)ITLES
14      , <UF#> *  [Examine and Edit]
15
16
17 *Note:  Edit commands are available when the User Function Examine screen is
18 displayed.
19
20
21
22
23
24
```

User Function Menu

00000000011111111122222222233333333334444444445555555556666666667777777778
 1234567890123456789012345678901234567890123456789012345678901234567890

```

1                                USER FUNCTION TITLES                                Page 1 of 4
2  COMMAND:  U,
3  FEEDBACK: EXECUTED - U,EXA,T
4
5      1.  DEFINE_AND_DISPLAY_TIME_LAPSE_VIL
6      2.  Not defined.
7      3.  FLASH_FLOOD_DISPLAY_REQUESTS
8      4.  Not defined.
9      5.  Not defined.
10     6.  Not defined.
11     7.  MAGNIFY_REFLECTIVITY_CENTER_PUP
12     8.  DISPLAY_SEVERE_WEATHER_ANALYSIS_PRODUCTS
13     9.  DISPLAY_CURRENT_ALERT_MESSAGE
14    10.  Not defined.
15    11.  Not defined.
16    12.  Not defined.
17    13.  Not defined.
18    14.  DEFINE_FLASH_FLOOD_TIME_LAPSE_LOOPS
19    15.  DISPLAY_LATEST_PROD;_MAGNIFY_8X_OVER_PUP
20    16.  Not defined.
21    17.  Not defined.
22
23
24

```

User Function Titles

00000000011111111122222222233333333334444444445555555556666666667777777778
 1234567890123456789012345678901234567890123456789012345678901234567890

```

1                                EXAMINE/EDIT USER FUNCTION  1:  TEST                                Page 1 of 1
2  COMMAND:  U,
3  FEEDBACK: EXECUTED - U,EXA,1
4
5      [Each edit cmd must be preceded by "(U)SER FUNCTION,"]
6  EDIT CMDS: (DEL)ETE,<LINE#>                                (R)EPLACE END,[(E)ND OR <UF#>]
7              (I)NSERT,<LINE#>                                (REN)AME UF TITLE, <NEW TITLE>
8
9      1 D,G,R  16 .54 0.5 KCRI 20:36          L   14 AUTO DISPLAY RESUME/HALT          L
10     2 QUADRANT 1                                R   15 PRODUCT OFF/ON                                R
11     3 COMPOSITE REFLECTIVITY                  R   16 PRODUCT OFF/ON                                R
12     4 QUADRANT 2                                R   17 U,EN,E
13     5 COUNTY                                    R
14     6 QUADRANT 3                                R
15     7 ECHO TOPS CONTOUR                        R
16     8 QUADRANT 4                                R
17     9 BASE VELOCITY                            R
18    10 COMBINE UP                                L
19    11 COMBINE UP                                L
20    12 COMBINE UP                                L
21    13 COMBINE UP                                L
22
23
24

```

Examine/Edit User Function 1: Test

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1                                ADAPTATION DATA MENU
2  COMMAND:  AD,
3  FEEDBACK:
4
5  Enter command.
6
7  (R)OUTLINE PRODUCT SETS, <RPS-ID>, (E)DIT *
8                                , (L)EFT DISPLAY RATE ***, <SECONDS>
9                                , (R)IGHT DISPLAY RATE ***,<SECONDS>
10                               , (RE)PLACE WITH, <RPS-ID> [R for current list]
11  (A)LERT PROCESSING, <ALERT-AREA> *
12                                , (T)HRESHOLD VALUES
13  (B)ACKGROUND MAP ASSOCIATIONS, <PROD-ID#> *
14  (O)VERLAY ASSOCIATIONS, <PROD-ID#> *
15  (C)URSOR HOME LOCATION ***, <LATITUDE> ***, <LONGITUDE>
16  <PASSWORD> **
17
18  *Footnote:  Enters edit screen at this point.
19  **Footnote:  To modify other categories.  (Extended Adaptation Data Menu.)
20  ***Footnote:  Current value displayed if command ends at this point.
21
22
23
24
```

Adaptation Data Menu

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1                                ADAPTATION DATA RPS EDIT SCREEN (ID: A)                                Page 1 of 1
2  COMMAND:
3  FEEDBACK:
4
5  (M)ODIFY, <LINE#>, <prod-name>                                (D)ELETE, <LINE#>
6  (I)NSERT, <LINE#>, <PROD-NAME>                                (C)ANCEL ALL
7  Press function key F1 or F2 to exit and to save all changes.
8
9
10  PROD  DTA
11  LN  NAME  LVL  RES  SLICE  PARAM 1  PARAM 2  DSP  FRQ  PRI  USR  DIST  ARC
12  --  ----  ---  ---  ----  -----  -----  ---  ---  ---  ---  ---  ---
13
14  ( e d i t   l i n e )
15
16  --  ----  ---  ---  ----  -----  -----  ---  ---  ---  ---  ---  ---
17  1  R      8    4   10.5                                R    1    H    N    N    Y
18  2  SW     8    .5  10.5                                L    1    H    N    N    Y
19  3  V     16   .25  8.0                                  L    1    H    N    N    Y
20  4  CR      4                                2    H    Y    Y    N
21  5  ET      4                                4    L    Y    Y    N
22  6  V     16   .25  10.5                                L    1    H    N    N    Y
23  7  R      8    4    8.0                                R    1    H    N    N    Y
24  8  R     16    4   10.5                                R    1    H    N    N    Y

```

Adaptation Data RPS Edit Screen (ID: A)

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      ALERT PROCESSING EDIT SCREEN
2  COMMAND:  AD,A,1
3  FEEDBACK:
4
5  For assistance, Press help button.
6
7      CATEGORY CODES
8  -----
9      ALERT AREA 1      ALERT AREA 2      GRID GROUP      13. Prob Svr Hail
10     CAT  THRESH SEND  CAT  THRESH SEND  1. Velocity      14. Storm Top
11     # CODE  CODE  PROD  CODE  CODE  PROD  2. Comp Refl     15. Max 1HR Precip
12     ---  ---  ---  ---  ---  ---  3. Echo Tops     16-24. Not Used
13     1   1    2    N    1    2    N    4. SWP
14     2   2    3    N    3    3    Y    5. Not Used     FORECAST GROUP
15     3   3    3    Y    7    3    Y    6. VIL          25. Max Hail Size
16     4   7    3    Y    9    1    Y    7. VAD          26. MESO
17     5   9    1    Y   11    6    N    8. Max Hail Size 27. TVS
18     6  11    6    N   25    2    Y    9. MESO          28. Max Storm Refl
19     7  25    3    Y          10. TVS          29. Prob Hail
20     8  30    4    Y          11. Max Storm Refl 30. Prob Svr Hail
21     9  31    4    Y          12. Prob Hail    31. Storm Top
22     10
23
24
```

Alert Processing Edit Screen

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      ALERT THRESHOLD VALUES  (08:57 02/04/92)      Page 1 of 3
2  COMMAND:  AD,
3  FEEDBACK: EXECUTED - AD,A,T
4
5  GRID GROUP
6  -----
7      CAT  NAME      UNITS      T1      T2      T3      T4      T5      T6
8      ---  ---  ---  ---  ---  ---  ---  ---  ---
9      1  VELOCITY      kt          10      20      30      40      50      60
10     2  COMPOSITE REFL dBZ          20      30      40      50      60      70
11     3  ECHO TOPS      kft          30      40      50      60
12     4  SEVR WTHR PROB %          30      40      50      60
13
14     6  VERT INTEG LIQ kg/m2        20      30      50      60
15
16
17
18
19
20  VOLUME GROUP      P,2
21  FORECAST GROUP    P,3
22
23
24
```

Alert Threshold Values

00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1

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23

24

ALERT THRESHOLD VALUES (08:57 02/04/92)

Page 2 of 3

COMMAND: P,

FEEDBACK: EXECUTED - P,2

VOLUME GROUP

CAT	NAME	UNITS	T1	T2	T3	T4	T5	T6
7	VEL AZ DISPL	kt	30	40	50	60	70	80
8	MAX HAIL SIZE	IN	0.25	0.50	0.75	1.00	1.25	1.50
9	MESOCYCLONE		UN COR	3D COR	MESO			
10	TORNADO VORTEX		ETVS	TVS				
11	MAX STORM REFL	dBZ	40	50	60	70	75	80
12	PROB HAIL	%	10	20	30	50	70	90
13	PROB SVR HAIL	%	10	20	30	50	70	90
14	STORM TOP	Kft	30	40	45	50	55	60
15	MAX 1HR PRECIP	.1 in	10	20	30	40		

GRID GROUP P,1

FORECAST GROUP P,3

Alert Threshold Values

00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1

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23

24

ALERT THRESHOLD VALUES (10:29 02/04/92)

Page 3 of 3

COMMAND: P,

FEEDBACK: EXECUTED - P,3

FORECAST GROUP

CAT	NAME	UNITS	T1	T2	T3	T4	T5	T6
---	-----	----	----	----	----	----	----	----
25	MAX HAIL SIZE	IN	0.25	0.50	0.75	1.00	1.25	1.50
26	MESOCYCLONE		UN COR	3D COR	MESO			
27	TORNADO VORTEX		ETVS	TVS				
28	MAX STORM REFL	dBZ	40	50	60	70	75	80
29	PROB HAIL	%	10	20	30	50	70	90
30	PROB SVR HAIL	%	10	20	30	50	70	90
31	STORM TOP	Kft	30	40	50	60	65	70

GRID GROUP P,1

VOLUME GROUP P,2

Alert Threshold Values


```
0000000001111111112222222222333333333344444444445555555555666666666677777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```
1 BACKGROUND MAP ASSOCIATIONS EDIT SCREEN
2 COMMAND: AD,B,23
3 FEEDBACK:
4
5 Place an "X" under the background maps to be associated with this product.
6
7 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 3 3 3
8 MAP NUMBER: 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2
9 -----
10 ASSOCIATION: X X
11
12 MAP NUMBERS AND MAP NAMES
13 -----
14 1. State Lat/Lon 9. Airway Low 17. Polar Grid
15 2. County 10. Navaid 18. RDA
16 3. Highway 11. Warning Area 19. City
17 4. River 12. Military Operations Area 20. County Names
18 5. River Basin 13. Restricted Area 21-32. Not Defined.
19 6. LFM Grid 14. Prohibited Area
20 7. Airport 15. Radar Sites
21 8. Airway High 16. Range Ring
22
23
24
```

Background Map Associations Edit Screen

```
0000000001111111112222222222333333333344444444445555555555666666666677777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```
1 OVERLAY ASSOCIATIONS EDIT SCREEN
2 COMMAND: AD,0,23
3 FEEDBACK:
4
5 Place an "X" under the overlays to be associated with this product.
6
7 1 1 1 1 1 1 1
8 OVERLAY NUMBER: 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
9 -----
10 ASSOCIATION: X X
11
12 OVERLAY NUMBERS AND NAMES
13 -----
14 1. Hail Index 9. Severe Weather Probability
15 2. Mesocyclone 10. Combined Shear Contour
16 3. Tornado Vortex Signature 11. Current Cross Section
17 4. Storm tracking Information 12 to 16. Not Defined.
18 5. Annotations
19 6. Attributes
20 7. Alert Area #1
21 8. Alert Area #2
22
23
24
```

Overlay Associations Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1          EXTENDED ADAPTATION DATA MENU
2  COMMAND:  AD,*****,
3  FEEDBACK:
4
5  Enter command.
6
7  (P)RECEDENCE OF OVERLAYS *
8  (C)OLORS, (P)RODUCT, <PROD-ID#>, (C)OLOR SCALE, <screen> **
9                                     , (G)RAY SCALE, <screen> **
10                                    , (H)ARDCOPY *
11      , (S)AVE COLOR SELECTIONS
12      , (C)ANCEL COLOR SELECTION MODE
13  (RCM) PARAMETERS *
14  (D)IAL IN OTHER USER LIST *
15  (R)PG LIST *
16  (N)ARROWBAND LINE DEFINITIONS *
17  (S)CIT HDA AND TVS DISPLAY PARAMETERS *
18  (PASS)WORD CHANGE, <New Password>
19  NUMERICALLY EDITABLE DATA
20  *Footnote:  Enters edit screen at this point.
21  **Footnote:  Enters color selection mode at this point.
22
23
24
```

Extended Adaptation Data Menu

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1          PRECEDENCE OF OVERLAYS EDIT SCREEN
2  COMMAND:  AD,*****,P
3  FEEDBACK:
4
5  HIGHEST: | 3 | Arrange overlay numbers in order of
6           | 2 | graphic screen precedence.
7           | 4 |
8           | 1 | OVERLAY NUMBERS AND NAMES
9           | 5 | -----
10          | 8 | 1. Hail Index                      9. Combined Shear Contour
11          | 9 | 2. Mesocyclone                      10. Current Cross Section
12          |10 | 3. Tornado Vortex Signature         11 to 16. not Defined.
13          | 6 | 4. Storm Tracking Information
14          | 7 | 5. Annotations
15          |   | 6. Alert Area #1
16          |   | 7. Alert Area #2
17          |   | 8. Severe Weather Probability
18          |   |
19          |   |
20  LOWEST:  |   |
21
22
23
24
```

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      HARDCOPY COLOR SELECTION EDIT SCREEN (ID= 16)
2  COMMAND:  AD,*****,C,P,16,H
3  FEEDBACK:
4
5      RGB
6      ---
7      1. | 4D9 |
8      2. | 723 |
9      3. | A4F |
10     4. | 475 |
11     5. | 983 |
12     6. | 87C |
13     7. | 227 |
14     8. | 006 |
15     9. |
16    10. |
17    11. |
18    12. |
19    13. |
20    14. |
21    15. |
22
23
24
```

Hardcopy request ☐

Edit Screen Instructions:

Edit one hex digit (one of 16 possible values) each for the Red, Green and Blue color components for each corresponding level.

For a hardcopy of the edited colors, depress the HOME key followed by RETURN. HOME will position the cursor onto the hardcopy request field. Edit mode is still active after RETURN is depressed.

To save editing, depress RETURN while the cursor is not in the hardcopy request field.

Hardcopy Color Selection Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      RCM PARAMETER EDIT SCREEN
2  COMMAND:  AD,*****,RCM
3  FEEDBACK:
4
5
6  Edit parameters and press RETURN to save changes.
7
8      RCM EDIT      RCM EDIT
9  EDIT RCM      1ST WARNING      2ND WARNING
10 FLAG*      TIME**      TIME**
11 -          -          -
12 1          5          2
13
14
15
16 *Note: EDIT RCM FLAG values are:
17     0 - RCM from associated RPG may not be edited.
18     1 - RCM from associated RPG may be edited.
19 **Note: RCM EDIT WARNING TIMES are in minutes prior to end of RCM edit session.
20     Valid range is 1 to 9 minutes. Time 1 must be larger than Time 2.
21     (Edit session duration is determined at RPG).
22
23
24
```

RCM Parameter Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

1				DIAL-IN OTHER USER LIST EDIT SCREEN	Page 1 of 1
2	COMMAND:				
3	FEEDBACK:				
4					
5	(M)ODIFY, <LINE #>			(D)ELETE, <LINE #>	
6	(I)NSERT			(C)ANCEL ALL	
7	Press function key F1 or F2 to exit and save all changes				
8					
9		OTHER	OTHER	DISCONNECT	
10		USER	USER	OVERRIDE	
11	NO	ID #	PASSWORD	PRIVILEGES	
12	--	----	-----	-	
13					
14	--	----	-----	-	
15	1	50	PURPLE	N	
16	2	60	RED	Y	
17	3	75	FESTUS	Y	
18	4	100	TONY Z	N	
19	5	103	HELLO	N	
20	6	203	GOOD	Y	
21					
22					
23					
24					

Dial-In Other User List Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

1								RPG LIST EDIT SCREEN	Page 1 of 25
2	COMMAND:								
3	FEEDBACK:								
4									
5	(M)ODIFY, <LINE #>							(D)ELETE, <LINE #>	
6	(I)NSERT							(C)ANCEL ALL	
7	Press function key F1 or F2 to exit and save all changes.								
8									
9	NO	RPG	RPG PORT	RPG USER	RPG			OVERRIDE	
10		ID #	PASSWORD	PASSWORD	MNEM	PHONE #		DISCONNECT	
11	---	----	-----	-----	-----	-----		-	
12	1	5	FOUR	BERLIN	KMCI	181362436001234567890123		N	
13	2	11	MINE	PARIS	KPHL	3226400		Y	
14	3	12	SELF	WXMAN1	KBLM	12053558923		N	
15	4	15	BAD	BRIAN	KOUN	16096549439AQZSWEDC//123		N	
16	5	100	GOOD	WXMAN2	KTRV	12159764432		Y	
17	6	101	PASS	DUMB	KOKC	3654356		Y	
18	7	102	HELP	ME	KMIA	14031230434		N	
19	8	110	ITWR	BEAV	KLAX	12039482433!![]//aqz//CB		N	
20									
21									
22									
23									
24									

RPG List Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      NARROWBAND LINE DEFINITION EDIT SCREEN      Page 1 of 2
2  COMMAND:
3  FEEDBACK:
4
5  (M)ODIFY, <LINE #>      (C)ANCEL ALL
6  Press function key F1 or F2 to exit and save all changes.
7
8
9  LINE  LINE      COMMS      LINE      BAUD      LINE      DIALIN  OTH USER  OTH USER
10 NO    NAME      OPTION      CLASS     RATE      TYPE     PASSWORD*  MODE**  MAXCNCT
11 --    ----      -          -         -         -         -          -        -
12                                     (e d i t   l i n e)
13 --    ----      -          -         -         -         -          -        -
14  1    J01        N          ARPG      9600      DEDIC
15  2    J02        N          ARPG      9600      DEDIC
16  3    J03        Y          NARPG     14400     DIALOUT
17  4    XXXX              NONE
18  5    XXXX              NONE
19
20 NOTE: Press F5 (HELP) for entry selection definitions. Press F2 to return.
21 * For Dial-In Other User Only      ** For Dial-In or Dedicated Other User
22
23
24
```

Narrowband Line Definition Edit Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```

1      SCIT AND HDA DISPLAY PARAMETERS
2  COMMAND:
3  FEEDBACK:
4
5  Enter the display parameters and press RETURN.  Changes take effect immediately.
6
7  SCIT      Number of cells to display (0 to 100):  50
8            Display past positions? (Y or N)      :  Y
9            Display forecast positions? (Y or N)   :  Y
10
11  HDA      Probability of Hail
12           Minimum display threshold (10% to 100%, or D*): 10
13           Symbol fill-in threshold (10% to 100%)      : 50
14
15           Probability of Severe Hail and Maximum Expected Hail Size
16           Minimum display threshold (10% to 100%, or D*): 10
17           Symbol fill-in threshold (10% to 100%)      : 50
18
19  TVS      Display Elevated Tornado Vortex Signatures? (Y or N):  N
20
21  *Enter the letter D to disable the display of a particular symbol.
22
23
24
```

SCIT and HDA Display Parameters

NWS EHB6-531-1

0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

```
1          NUMERICALLY EDITABLE DATA EDIT SCREEN
2  COMMAND:  AD,****,***,17,0
3  FEEDBACK:
4
5  WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
6
7          Category #17 G.T. Box Assignments
8
9          OFFSET    00    01    02    03    04    05    06    07
10         -----
11             0  0128  0103  00C1  00C0  0102  00BF  00BE  0101
12             8  00BD  00BC  00B4  00BB  00BA  00B2  00B9  00B7
13            16  00B6  00B1  0106  010C  00B5  00B3  010B  00B8
14            24  00B3  00C6  00CD  00FD  00FE  00E0  0000  00F9
15            32  0110  00EF  00EC  00EE  0112  00DB  00DD  00DE
16            40  00DF  011C  00FB  00F8  010F  00F2  00F3  00ED
17            48  0113  00D8  00D7  00AC  0000  00D9  00FC  0119
18            56  00DC  00F0  00F1  00EB  00FA  00D2  00F6  00F7
19
20
21
22
23
24
```

Numerically Editable Data Edit Screen

0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

```
1          MONITOR PERFORMANCE MENU
2  COMMAND:  M,
3  FEEDBACK:
4
5  Enter command.
6
7  (D)ISPLAY
8  (B)EGIN MONITORING
9  (E)ND MONITORING
10 (P)ERIOD *, <MINUTES>
11
12
13 *Footnote:  Current value displayed if command ends at this point.
14
15
16
17
18
19
20
21
22
23
24
```

Monitor Performance Menu

000000000111111111222222222333333333344444444455555555566666666677777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1 MONITOR PERFORMANCE FILE Page 1 of 2
2 COMMAND: M,
3 FEEDBACK: EXECUTED - M,D
4
5 PERIOD: 1 MIN SAMPLING TIME: 13:41:02 CPU: 22% SECTORS USED: 50%
6
7 COMMUNICATION LINES (TOTAL kBYTES) CHANNEL INFORMATION (TOTAL kBYTES)
8 LN# I/O CLASS* kBYTES LN# I/O CLASS* kBYTES DISK: 0
9 --- --- --- --- --- ARCHIVE: 0
10 1 IN ARPG 120 6 IN NOT USED 0 RAMTEK: 0
11 1 OUT ARPG 22 6 OUT NOT USED 0
12 2 IN NOT USED 0 7 IN PUES 2 OPTICAL DISK UTILIZATION
13 2 OUT NOT USED 0 7 OUT PUES 10 OPT1: 12% OPT2: N/A
14 3 IN NARPG 4 8 IN OTH 6
15 3 OUT NARPG 1 8 OUT OTH 30 PRODUCTS RECEIVED: 44
16 4 IN NOT USED 0 9 IN NOT USED 0 PRODUCTS TRANSMITTED: 321
17 4 OUT NOT USED 0 9 OUT NOT USED 0
18 5 IN NOT USED 0 10 IN NOT USED 0 PUES PRODUCT LOAD SHED: 0
19 5 OUT NOT USED 0 10 OUT NOT USED 0 RPG PRODUCT LOAD SHED: 0
20
21 *CLASS ARPG=Ass. RPG(CRPG=56k Baud),NARPG-Non-Ass. RPG,PUES=Pues,OTH=Oth. Users
22
23
24

Monitor Performance File

000000000111111111222222222333333333344444444455555555566666666677777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1 MONITOR PERFORMANCE FILE Page 2 of 2
2 COMMAND: P,
3 FEEDBACK: EXECUTED - P,2
4
5 PERIOD: 1 MIN SAMPLING TIME: 13:41:02 PRODUCTS DISPLAYED: 237
6
7 AVERAGE RESPONSE TIME (MILLISECONDS)
8 PRODUCT TURN ON/TURN OFF: 56 TIME LAPSE DISPLAY
9 BACKGROUND MAP SELECTION/DESELECTION: 723 FIRST IMAGE: 1999
10 BACKGROUND MAP TURN ON: 499 SUCCESSIVE IMAGES: 58
11 BACKGROUND MAP TURN OFF: 77 IMAGE REPLACE: 97
12 OFFSET CENTER/PRESET CENTER: 2398
13 DISPLAY ANNOTATION: 200 PRODUCT
14 DISPLAY CURSOR COORDINATES: 923 SELECTION: 299
15 CURSOR HOME: 89 DESELECTION: 100
16 TEST PATTERN SELECTION/DESELECTION: 898 MAGNIFICATION: 2000
17 STATUS MESSAGE OUTPUT: 9101
18 HARDCOPY SET UP: 2776
19
20
21
22
23
24

Monitor Performance File

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1                                     HELP MENU
2  COMMAND:  H,
3  FEEDBACK:
4
5  Enter command.
6
7      MENUS                                MISCELLANEOUS                        DEVICES
8      -----                                -----                                -----
9  (M)ENU USAGE                            (F)UNCTION KEYS ALPHA                    (ALP)HANUMERIC DISPLAY
10 (C)ONTROL                                (P)ROD NAMES AND IDS                    (GR)APHIC TABLET
11 (S)TATUS                                (PA)RAMS AND IDS OF PRODS                (HA)RDCOPY COLORS PRINT
12 (D)ISPLAY                                (AN)NOTATE PRODUCTS                      (SC)REEN COLORS,<screen>
13 (R)OUTINE PRODUCT SET                    (B)ACKGROUND MAP EDIT                    (TE)ST PATTERN
14 (G)EN AND DIST PRODS                     (E)DIT ALERT AREAS                      (RA)MTEK HARDWARE
15 (T)IME LAPSE                             (AL)ERTS                                (TA)PE DRIVES
16 (A)RCHIVE                               (TR)AINING MODE                         (COM)MUNICATIONS LINES
17 (U)SER FUNCTIONS                         (W)EATHER OP MODE VCP                    (O)PTICAL DISK
18 (AD)APTATION DATA
19 (MO)NITOR PERFORMANCE
20 (H)ELP
21
22
23
24
```

Help Menu

```
00000000011111111122222222233333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890

1                                     SYSTEM OPTION MENU
2  COMMAND:  ***** ,
3  FEEDBACK:
4
5  Enter command.
6
7  (H)ARDCOPY, (E)NABLE
8      , (D)ISABLE
9      , (F)ULL SCREEN
10     , (P)RODUCTS ONLY
11 (S)CREEN , (D)RAW
12     , (B)LANK
13 (E)DIT MAPS, (D)ISABLE
14     , (E)NABLE
15 (CLEAR) PRODUCT FILE
16
17
18
19
20
21
22
23
24
```

System Option Menu


```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```
1          FUNCTION KEYS ALPHA HELP SCREEN          Page 1 of 15
2  COMMAND:  H,
3  FEEDBACK: EXECUTED - H,F
4
5      The following is a list of Function Keys along with the page number
6  describing each Function Key's help text:
7
8  F1:  RETURN TO MAIN MENU.....P,3
9  F2:  RETURN TO PREVIOUS MENU.....P,4
10 F3:  CANCEL ALPHANUMERIC SELECTION.....P,5
11 F4:  RESTORE COMMAND.....P,6
12 F5:  HELP.....P,6
13 F6:  PAGE ALPHANUMERIC BACK.....P,7
14 F7:  PAGE ALPHANUMERIC FORWARD.....P,7
15 F8:  AUTO ALPHA.....P,8
16 F9:  HALT AUTO ALPHA.....P,9
17 F10: SEND RPG REQUEST.....P,10
18 F11: ALPHANUMERIC HARDCOPY.....P,11
19 F12: REDISPLAY LAST ALPHA PRODUCT.....P,12
20 F13: DISPLAY LATEST RECEIVED ALPHA PRODUCT....P,13
21 F14: DISPLAY QUEUED ALPHA PRODUCT.....P,13
22
23
24
```

Function Keys Alpha Help Screen

```
0000000001111111112222222223333333334444444445555555556666666667777777778
1234567890123456789012345678901234567890123456789012345678901234567890
```

```
1          FUNCTION KEYS ALPHA HELP SCREEN          Page 2 of 15
2  COMMAND:  P,
3  FEEDBACK: EXECUTED - P,2
4
5  List of Function Keys along with the paging command to display each
6  Function Key's help text:  (Continued)
7
8  F15: ACKNOWLEDGE ALPHA PRODUCT.....P,14
9  F16: ACKNOWLEDGE ALERT.....P,14
10 F21: PRODUCT NAMES AND IDS.....P,15
11
12
13
14
15
16
17
18
19
20
21
22
23
24
```

Function Keys Alpha Help Screen

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APPENDIX B

GRAPHIC TABLET LAYOUT

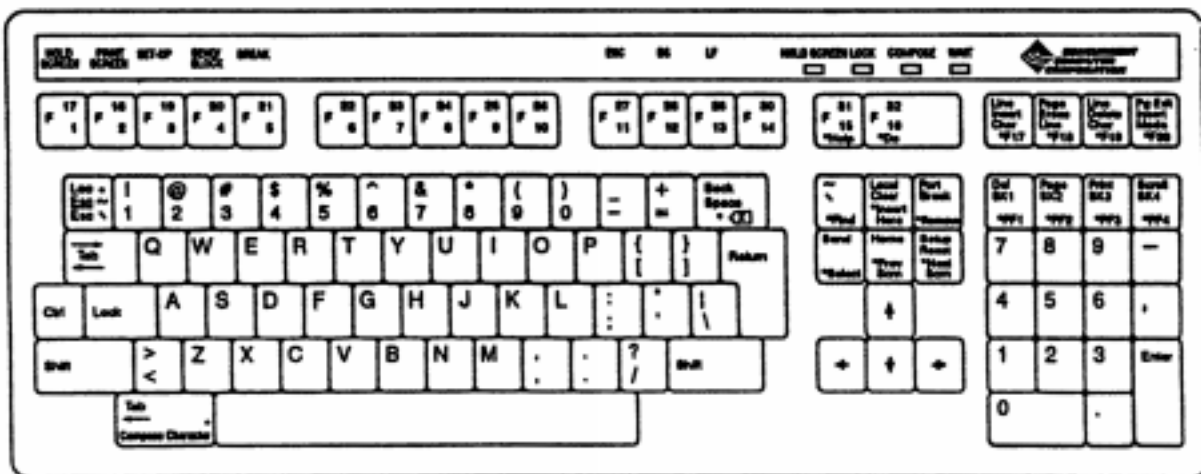
GRAPHIC TABLET

KEYBOARD																	SYMBOLS								USER FUNCTIONS							
EDIT COMMANDS	EDIT ANNOT	EDIT ALERT AREA	DELETE ALERT BOX	ADD ALERT BOX	DEL RCTL	ADD RCTL		EDIT RCM PART A	EDIT RCM PART C	57 25	58 26	59 27	60 28	61 29	62 30	63 31	64 32	26	27	28	29	30										
	EDIT MAP	HIGH DETAIL	1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	* 8	(9	) 0	+ =	BACK SPACE	51 19	52 20	53 21	54 22	55 23	56 24	21	22	23	24	25						
	START ERASE	END ERASE	Q	W	E	R	T	Y	U	I	O	P	-	RET	45 13	46 14	47 15	48 16	49 17	50 18	16	17	18	19	20							
	START LINE	END LINE	A	S	D	F	G	H	J	K	L	:	;	UPPER SHIFT	39 7	40 8	41 9	42 10	43 11	44 12	11	12	13	14	15							
	CANCEL EDIT	EXIT EDIT & SAVE	Z	X	C	V	B	N	M	<	>	? /	SPACE	LOWER SHIFT	33 1	34 2	35 3	36 4	37 5	38 6	6	7	8	9	10							
PARAMETERS	AZRAN SELECT																						UF1	2	3	4	5					
	CROSS SECTION SELECT																						CANCEL UF	SPEED DOWN	SPEED UP	FRAME BACK	FRAME FORWARD					
	RPG																						TIME LAPSE RES/HLT	TIME LAPSE 1	TIME LAPSE 2	TIME LAPSE 3						
	TIME																						AUTO RES/HLT	QUAD 1	QUAD 2	RECENTER MAG 1X	RECENTER MAG 2X					
	DATE																						FULL SCREEN	QUAD 3	QUAD 4	RECENTER MAG 4X	RECENTER MAG 8X					
	REPEAT COUNT																						CLEAR SCREEN/ QUAD	FILTER	COMBINE DOWN	COMBINE UP	CURSOR HOME DEFINE					
	END HOUR																						BLINK COLOR LEVEL	RESTORE DISPLAYED PRODUCT	GRAY/COLOR SCALE	CURSOR AUTO/ MANUAL	CURSOR LINK/UNLINK					
	SLICE/ DURATION																						ALL QUADRANTS	HARD COPY	PRESET CENTER	CURSOR HOME	AZRAN R/ LAT LON/ AZRAN H					
	CENTER AZIMUTH																						ACK ALERT	CELL TRENDS	VR/SHEAR DISPLAY	CURRENT CROSS SECTION CR	ANNOT'S AN					
	CENTER RANGE																						HAIL	MESO	TVS	STORM TRACK	ATTRIBUTE AT					
	STORM DIRECTION																						ALERT AREA 1 A1	ALERT AREA 2 A2	SWP SW		COMBINED SHEAR CONTOUR SC					
	STORM SPEED																						OVERLAYS OFF/ON	OVERLAYS ERASE	MAP OVERLAY DELETE	STOP BLINK	PAGE ATTRIBUTE					
	CONTOUR INTERVAL																															
	ALL/ONE SWA																															
	MATCH PARA. METERS																															
	DEFAULT PARA. METERS																															
ELEVATION UP		LOW PRIORITY	DISPLAY PRODUCT	BASE REF R	COMP REF CR	COMP REF CONTOUR CRC	ECHO TOPS COUNTOUR ETC	REF CROSS SECTION RCS	ACK PRODUCT	DISPLAY QUEUED PRODUCT	PRODUCT OFF/ON	MAPS OFF/ON	MAPS ERASE	MAPS FOREGD/ BACKGD	CANCEL HELP																	
ELEVATION DOWN		REQUEST MAPS		BASE VEL V	STM REL VEL REGION SRR	STM REL VEL MAP SRM	ECHO TOPS ET	VEL CROSS SECTION VCS	PRODUCT BACK	PRODUCT FORWARD	TRANSFER SCREEN PRODUCT	STATE LAT/LON ST	COUNTY CO	HIGHWAY HY	RADAR SITES RS																	
LOWEST ELEVATION		BLANK TIME DATE	SEND RPG REQ	BASE SPECTRUM WIDTH SW	COMBINED SHEAR CS	COMBINED SHEAR CONTOUR CSC	COMBINED MOMENT CM	SPECTRUM WIDTH CROSS SECTION SCS	NEXRAD UNIT STATUS	CLEAR QUEUE	REDISPLAY LAST PRODUCT	RIVER RV	RIVER BASIN RB	RDA	RANGE RING																	
DED ASSOC RPG		.13 NM	8 LEVEL	ONE HOUR PRECIP OHP	THREE HOUR PRECIP THP	STORM TOTAL PRECIP STP	USER SELECTABLE PRECIP USP	STORM TRACK STI	TORNADO VORTEX SIGNATURE TVS	RADAR CODED MESSAGE RCM	ALL SWA PRODUCTS	WARNING AREA WA	MIL OPN AREA MO	POLAR GRID	LFM GRID LF																	
DIAL-UP ASSOC RPG		.27 NM	16 LEVEL	MESO	SEVERE WEATHER PROBABILITY SWP	WEAK ECHO REGION WER	VERTICALLY INTEGRATED LIQUID VIL	VELOCITY AZIMUTH DISPLAY VAD	HAIL HI	SWA REF SWR	SWA VEL/SRR SWV/SWR	RSTRCTD AREA RA	PRHBTD AREA PA	AIRWAY HIGH AH	CITY CI																	
RPG 1		.54 NM	HIGH ALT	LAYER COMP REF MAX LRM	LRM AP REMOVED APR	LAYER COMP REF AVG LRA		VAD WIND PROFILE VWP	HYBRID SCAN REF HSR	SWA SPECTRUM WIDTH SWW	SWA SHEAR SWS	NAVAID NA	AIRPORT AP	AIRWAY LOW AL	COUNTY NAMES CN																	
RPG 2		1.1 NM	MID ALT																													
RPG 3		2.2 NM	LOW ALT																													

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APPENDIX C

ALPHANUMERIC KEYBOARD



*Label appears on front of key.

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APPENDIX D

PRODUCT ANNOTATION/STATUS AREA OF GRAPHIC DISPLAY

(FULL SCREEN DISPLAY MODE)

FIELD CONTENTS

1.	CURRENT DATE AND TIME		
2.	PRODUCT NAME, ID NUMBER, AND MNEMONIC		
3.	PRODUCT RESOLUTION AND/OR COVERAGE AREA		
4.	PRODUCT VOLUME SCAN TIME AND DATE, SPOT BLANK INDICATOR		
5.	RADAR ID MNEMONIC WITH ELEVATION AND POSITION (LATITUDE AND LONGITUDE)		
6.	PRODUCT ELEVATION, ALTITUDE, MAX PRECIP OR ELEV SEGMENT NUMBER		
7.	OPERATIONAL MODE AND VOLUME COVERAGE PATTERN OR CHANNEL		
8.	CENTER COORDINATES OF THE CURRENT DISPLAY		
9.	PRODUCT DEPENDENT DATA (MAXIMUM DATA LEVELS, ETC.)		
10.	_____ DATA LEVEL 1	UNITS	
	_____ DATA LEVEL 2		
	_____ DATA LEVEL 3		
	_____ .		
	_____ .		
	<u>PRODUCT</u> .		
	<u>COLOR</u>		
	<u>BAR</u>		

	_____ DATA LEVEL 15		
	_____ DATA LEVEL 16		
11.	MAGNIFICATION, FILTER LEVEL, AND COMBINE NUMBER		
12.	OVERLAYS DISPLAYED		
13.	OVERLAYS UNAVAILABLE		
14.	POLAR GRID RING INTERVAL AND ANGLE		
15.	BACKGROUND MAPS UNAVAILABLE		
16.	TIME LAPSE/AUTO DISPLAY RATE		
17.	CURSOR HEIGHT AND COORDINATES (LATITUDE AND LONGITUDE OR AZIMUTH/RANGE)		
18.	GRAPHIC PRODUCT QUEUE INDICATOR		
19.	RPG PRODUCT REQUEST STATUS		
20.	SYSTEM STATUS		
21.	GRAPHIC TABLET SELECTION		
22.	FEEDBACK		
23.	WEATHER ALERTS (UNACKNOWLEDGED AND ACKNOWLEDGED)		

Product Annotation/Status Area of Graphic Display (Full Screen) Field Descriptions:

1. **CURRENT DATE AND TIME:** This one-line field, displayed in yellow, contains the current date and time (GMT) to the nearest minute and is updated every minute.
2. **PRODUCT NAME, ID NUMBER, AND MNEMONIC:** This two-line field, displayed in white, contains the name, ID number, and mnemonic of the product currently displayed. The product ID number ranges from 16 to 90 and is used as a unique identifier for each combination of product category, data levels, resolution, and slice values. The product mnemonic is a one- to three-letter mnemonic which is an abbreviation of the product name.
3. **PRODUCT RESOLUTION AND/OR COVERAGE AREA:** This one-line field, displayed in white, contains both the resolution in nautical miles (if applicable) and the maximum radius or the box size in nautical miles (indicating the coverage area) of the product currently displayed.
4. **PRODUCT VOLUME SCAN DATE AND TIME, SPOT BLANK INDICATOR:** This one-line field, displayed in white, contains the volume scan time and date for the displayed product. This field also displays the spot blank indicator. Products generated from data collected during a volume scan period are all assigned a single volume scan time so that they may be matched, e.g., the correct overlays may be placed on products, etc. For products generated from a single volume scan, the assigned time is the time the volume scan began. For products using data from a series of volume scans (e.g., VAD wind profile and storm total precipitation), the assigned time is the time the last volume scan in the series began. If the product is a spot blanked product, the characters "SB" are displayed. If the product is not a spot blanked product, then this portion of the field is blank. Note: Spot blanking provides a WSR-88D site with the capability to inhibit radar transmission when the antenna is pointing in a direction which falls within a predefined spot blanking zone. The RPG marks products generated from radar data which include spot blanked zones. The PUP will check for the spot blanking status of the product(s) and annotate the graphic product and alphanumeric product display accordingly. The PUP displays the letters "SB" following (to the right of) the volume scan time and date of the product for spot blanked products.
5. **RADAR ID MNEMONIC WITH ELEVATION AND POSITION (Latitude and Longitude):** This two-line field, displayed in cyan blue, contains the radar (RPG) mnemonic and radar position in latitude/longitude. The radar mnemonic uniquely identifies the radar. The elevation of the antenna's center of radiation above mean sea level is displayed in feet. This field applies to the radar from which the displayed product originated.
6. **PRODUCT ELEVATION, ALTITUDE, MAX PRECIP OR ELEVATION SEGMENT NUMBER:** This one-line field, displayed in cyan blue, contains, when appropriate, the product elevation, altitude, maximum precipitation accumulation, or elevation segment number of the product currently displayed. The elevation represents the angle of the radar, in degrees and tenths above horizontal, at which the base product data displayed was collected. The altitude is used for layer products and indicates the altitude layer, above mean sea level, at which the displayed product data originated. The elevation segment number represents which clutter filter bypass/notchwidth maps were used to generate the Clutter Filter Control product. A 1 indicates the lowest elevation segment and a 2 indicates the upper elevation segment. The RDA adaptation data delineates the angle between the two segments.
7. **OPERATIONAL MODE AND VOLUME COVERAGE PATTERN OR CHANNEL:** This one-line field, displayed in cyan blue, contains the weather operational mode and volume coverage pattern that was current at the RPG when the displayed product data was collected. The weather operational mode indirectly reflects the types of products being generated by the RPG. The volume coverage pattern indicates the rotation rate of the radar and the set of elevation angles being used to generate products. Channel is only used for Clutter Filter Control products and indicates whether the Doppler or surveillance channel notchwidth map was used to generate the product.
8. **CENTER COORDINATES OF THE CURRENT DISPLAY:** This one-line field, displayed in cyan blue, contains the center of the current display in azimuth/range format.
9. **PRODUCT DEPENDENT DATA (Maximum Data Levels, etc.):** This two-line field, displayed in cyan blue, contains product dependent data which provides useful information about the displayed product. A combination of maximum data levels, contour interval, storm speed and direction, and height of phenomenon are displayed, as applicable. The maximum data levels are from one to four values (product dependent) which indicate the largest magnitude data values detected when the product was generated. The maximum level is generally displayed in the same units as the data making up the image but must be interpreted on a product type by product type basis. The contour interval is displayed with the Composite

Reflectivity Contour product providing the interval in thousands of feet between data levels. The storm speed and direction is displayed in knots and degrees for the Storm Relative Mean Radial Velocity products. The height of phenomenon is displayed, in thousands of feet, with the severe weather analysis display products to provide the height at which the meteorological phenomenon occurred to cause generation of the product. For Clutter Filter Control products, product dependent data includes the bypass map date and time and the notchwidth map date and time. For User Selectable Precipitation products, these two lines contain the beginning hour of precipitation accumulation, the duration (in hours) as well as the end date and end hour of accumulation.

10. **PRODUCT COLOR BARS, DATA LEVELS, UNITS, AND SHEAR CONTOUR OVERLAY COLOR BARS AND DATA LEVELS:** The product color bars show the colors associated with each of the data levels for the currently displayed product. The data levels show the numeric value associated with the color bars. The data level units are also displayed in this field and are located to the right of data level 1. The shear contour overlay color bars and data levels appear when the shear contour overlay is displayed on the product. These color bars and data levels show the same items as the product color bars and data levels except they apply only to the shear contour overlay.
11. **MAGNIFICATION, FILTER LEVEL, AND COMBINE NUMBER:** This one-line field, displayed in white, contains (as appropriate) the magnification level, color or contour line filter level, and the color or contour line combine factor of the product currently displayed. The magnification level is one, two, four, or eight and indicates the number of times the product currently displayed has been magnified from the original data as generated. The filter level can range from one to 16 depending on the number of data levels filtered plus one. It indicates the data level at which filtering was selected by the operator. The combine number ranges from one to five and indicates the number of times a product's color bars have been changed, plus one. See Section 8.2.1 for further details.
12. **OVERLAYS DISPLAYED:** This two-line field, displayed in cyan blue, contains the one or two-letter mnemonic for each of the overlays currently and successfully displayed. Products that can be overlaid on other products and can have an attributes overlay are: Hail, Meso, TVS, Combined Shear Contour, and Storm Track. The AT mnemonic in the two-line field represents an available attributes overlay for either the main product or an overlay product. See Section 8.2.2 for further details.
13. **OVERLAYS UNAVAILABLE:** This two-line field, displayed in green, contains up to nine one or two-letter mnemonics for each overlay selected for display but unavailable. This means that there was no overlay product with the same volume scan time/date and the same RPG as the main product displayed. Products that can be overlaid on other products and can have an attributes overlay are: Hail, Meso, TVS, Combined Shear Contour, and Storm Track. The AT mnemonic in the two-line field represents an unavailable attributes overlay for either the main product or an overlay product. See Section 8.2.3 for further details.
14. **POLAR GRID RING INTERVAL AND ANGLE:** This one-line field, displayed in white when the polar grid map is centered at the RDA or yellow when centered at an operator selected cursor location, contains the interval in nautical miles between polar grid rings and the azimuth angle in degrees between each of the azimuth markers when polar grid maps are displayed. See Sections 6.11 and 8.2.4 for further details.
15. **BACKGROUND MAPS UNAVAILABLE:** This two-line field, displayed in green, contains the two-letter mnemonic for each background map selected for display but unavailable. Note that maps must be available for the same RPG that the product originated from (except
Range Rings, RDA, and Polar Grid). See Section 8.2.5 for further details.
16. **TIME LAPSE/AUTO DISPLAY RATE:** This one-line field, displayed in yellow, contains the time lapse or auto display rate, in seconds, as applicable to the particular graphic screen on which it is displayed. See Section 8.2.6 for further details.

17. **CURSOR HEIGHT AND COORDINATES (Latitude and Longitude or Azimuth/Range):** This two-line field, displayed in white or cyan blue, contains the cursor height in feet above mean sea level (when applicable) and the cursor location in either azimuth/range or latitude/longitude as applicable to the single graphic screen on which they are displayed. See Section 8.2.7 for further details.
18. **GRAPHIC PRODUCT QUEUE INDICATOR:** This one-line field, displayed in green, contains the number of products on the graphic queue and the next graphic product available on the queue for display with the Display Queued Product function on the graphic tablet. See Section 8.2.8 for further details.
19. **RPG PRODUCT REQUEST STATUS:** This two-line field, displayed in cyan blue, is used to inform the user of products that have been received from the RPG and other RPG status messages. See Section 8.2.10 for further details.
20. **SYSTEM STATUS:** This two-line field, displayed in alternating white and purple or in continuous white, describes the status of system changes and events and the time and day at which they occurred. See Section 8.2.9 for further details.
21. **GRAPHIC TABLET SELECTION:** This one-line field, displayed in green, describes the last function selection made on the graphic tablet, regardless whether it could be performed.
22. **FEEDBACK:** This one-line field, displayed in yellow, contains messages useful to the operator which result from operator function selections from the graphic tablet. These normally appear on whatever screen(s) to which the function selection applies.
23. **WEATHER ALERTS (Unacknowledged and Acknowledged):** This two-line field displays the word ALERTS followed by a list of alerts in white. Until the alerts have been acknowledged, "ALERTS" will blink alternate magenta and white. When Acknowledged, it will stop blinking and will display continuously white. See Section 8.3.1 for further details.

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APPENDIX E

PRODUCT ANNOTATION/STATUS AREA OF GRAPHIC DISPLAY

(QUARTER SCREEN DISPLAY MODE)

Field Contents

1.	CURRENT TIME AND DATE
2.	QUAD 1 MAGNIFICATION
3.	RADAR ID MNEMONIC WITH ELEVATION AND POSITION (LATITUDE AND LONGITUDE)
4.	OPERATIONAL MODE AND VOLUME COVERAGE PATTERN OR BYPASS MAP DATE & TIME
5.	MAXIMUM DATA LEVEL(S)OR NOTCHWIDTH MAP DATE & TIME
6.	OVERLAYS DISPLAYED
7.	POLAR GRID RING INTERVAL AND ANGLE
2.	QUAD 2 MAGNIFICATION
3.	RADAR ID MNEMONIC WITH ELEVATION AND POSITION (LATITUDE AND LONGITUDE)
4.	OPERATIONAL MODE AND VOLUME COVERAGE PATTERN OR BYPASS MAP DATE & TIME
5.	MAXIMUM DATA LEVEL(S)OR NOTCHWIDTH MAP DATE & TIME
6.	OVERLAYS DISPLAYED
7.	POLAR GRID RING INTERVAL AND ANGLE
2.	QUAD 3 MAGNIFICATION
3.	RADAR ID MNEMONIC WITH ELEVATION AND POSITION (LATITUDE AND LONGITUDE)
4.	OPERATIONAL MODE AND VOLUME COVERAGE PATTERN OR BYPASS MAP DATE & TIME
5.	MAXIMUM DATA LEVEL(S)OR NOTCHWIDTH MAP DATE & TIME
6.	OVERLAYS DISPLAYED
7.	POLAR GRID RING INTERVAL AND ANGLE
2.	QUAD 4 MAGNIFICATION
3.	RADAR ID MNEMONIC WITH ELEVATION AND POSITION (LATITUDE AND LONGITUDE)
4.	OPERATIONAL MODE AND VOLUME COVERAGE PATTERN OR BYPASS MAP DATE & TIME
5.	MAXIMUM DATA LEVEL(S)OR NOTCHWIDTH MAP DATE & TIME
6.	OVERLAYS DISPLAYED
7.	POLAR GRID RING INTERVAL AND ANGLE
	BLANK (THE FOLLOWING FIELDS ARE THE SAME AS FULL SCREEN DISPLAY - SEE APPENDIX D.)
	TIME LAPSE/AUTO DISPLAY RATE
	CURSOR HEIGHT AND COORDINATES (AZ/RAN OR LAT/LONG)
	PRODUCT QUEUE STATUS
	RPG PRODUCT STATUS
	SYSTEM STATUS
	GRAPHIC TABLET SELECTION
	FEEDBACK
	WEATHER ALERTS (UNACKNOWLEDGED AND ACKNOWLEDGED)

Product Annotation/Status Area of Graphic Display (Quarter Screen) Field Descriptions:

1. **CURRENT TIME AND DATE:** This field, displayed in yellow, contains the current date and time (GMT) to the nearest minute and is updated every minute.
2. **QUAD # AND MAGNIFICATION:** This field, displayed in yellow and white, contains a quadrant number and a magnification value for the product currently displayed in the specified quadrant. The quadrant number applies to this and the next four fields (three through six). The magnification level is one, two, four, or eight and indicates the number of times the product data currently displayed in the specified quadrant has been magnified from the original data as generated.
3. **RADAR ID MNEMONIC WITH ELEVATION AND POSITION:** This two-line field, displayed in white, contains the radar (RPG) mnemonic and position where the product displayed in this quadrant originated. The radar position is expressed in latitude and longitude. The radar elevation is the height of the antenna in center of radiation above mean sea level is displayed in feet.
4. **OPERATIONAL MODE AND VOLUME COVERAGE PATTERN OR BYPASS MAP DATE AND TIME:** This field, displayed in white, contains the weather operational mode and volume coverage pattern that was current at the RPG when the product data displayed in this quadrant was collected. The operational mode indirectly reflects the types of products being generated by the RPG. The volume coverage pattern indicates the rotation rate of the radar and the set of elevation angles being used to generate products. The bypass map date and time are displayed only when a Clutter Filter Control product is displayed.
5. **MAXIMUM DATA LEVEL(S) OR NOTCHWIDTH MAP DATE AND TIME:** This field, displayed in white, contains one or two values (product dependent) which indicate the largest magnitude data values detected when the product displayed in this quadrant was generated. The maximum level is generally displayed in the same units as the data making up the image but must be interpreted on a product type by product type basis. The notchwidth map date and time are displayed only when a Clutter Filter Control product is displayed.
6. **OVERLAYS DISPLAYED:** This field, displayed in cyan blue, contains the one or two-letter mnemonic for each of the overlays currently displayed in the quadrant. See Section 8.2.2 for further details.
7. **POLAR GRID RING INTERVAL AND ANGLE:** This field, displayed in white when the polar grid map is centered at the RDA or yellow when centered at an operator selected cursor location, contains the interval in nautical miles between polar grid rings displayed in this quadrant. Also displayed is the azimuth angle, in degrees, between each of the azimuth markers when polar grid maps are displayed. See Sections 6.11 and 8.2.4 for further details.

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APPENDIX F

WINDOW AND NON-WINDOW PRODUCT DISPLAY AREA IN QUARTER SCREEN DISPLAY MODE

Field Contents

WINDOW PRODUCT DISPLAY AREA IN QUARTER SCREEN	QUAD #	
	DATA LEVEL 1 DATA LEVEL 2 DATA LEVEL 3	
	DATA LEVEL 15 DATA LEVEL 16	
1. PRODUCT NAME WITH COVERAGE AREA AND/OR RESOLUTION		
2. PRODUCT VOLUME SCAN DATE AND TIME, SPOT BLANK INDICATOR	PRODUCT DISPLAY CENTER 3.	
4. ELEVATION OR ALTITUDE	STORM SPEED AND DIRECTION 5.	
6. ALERT TYPE	HEIGHT OF THE PHENOMENON 7.	

WINDOW PRODUCT DISPLAY IN QUARTER SCREEN DISPLAY MODE
(EACH QUADRANT)

Field Contents

NON-WINDOW PRODUCT DISPLAY AREA IN QUARTER SCREEN	QUAD #	
	DATA LEVEL 1	
	DATA LEVEL 2	
	DATA LEVEL 3	
	—	
	—	
	—	
		COLOR
		BARS
	DATA LEVEL 15	DATA LEVEL 16
1. PRODUCT NAME WITH COVERAGE AREA AND/OR RESOLUTION		
2. PRODUCT VOLUME SCAN DATE AND TIME, SPOT BLANK INDICATOR	3. PRODUCT DISPLAY CENTER	
4. ELEVATION, ALTITUDE, BEGINNING HOUR AND DURATION, OR ELEVATION SEGMENT NUMBER	5. STORM SPEED AND DIRECTION, END DATE AND END HOUR, OR CHANNEL	

NON-WINDOW PRODUCT DISPLAY IN QUARTER SCREEN DISPLAY MODE
(EACH QUADRANT)

Window and Non-Window Product Display in Quarter Screen Field Descriptions:

1. **PRODUCT NAME WITH COVERAGE AREA AND/OR RESOLUTION:** This field, displayed in white, contains the name, ID number, mnemonic, coverage area and/or resolution of the product currently displayed directly above it. The product ID number ranges from 16 to 90 and is used as a unique identifier for each combination of product category, data levels, resolution, and layer values. The product mnemonic is a one- to three-letter mnemonic which is an abbreviation of the product name. The resolution is also displayed here, along with the maximum radius, or the box size in nautical miles, indicating the coverage area. The resolution and coverage area are displayed as they are applicable to the product displayed.
2. **PRODUCT VOLUME SCAN DATE AND TIME:** This field, displayed in white, contains the volume scan time and date of the data from which the product displayed was collected. This field also displays the spot blank indicator. If the product is a spot blanked product, the characters "SB" are displayed. If the product is not a spot blanked product, then this portion of the field is blank. Note: Spot blanking provides a WSR-88D site with the capability to inhibit radar transmission when the antenna is pointing in a direction which falls within a predefined spot blanking zone. The RPG marks products generated from radar data which include spot blanked zones. The PUP will check for the spot blanking status of the product(s) and annotate the graphic product and alphanumeric product display accordingly. The PUP displays the letters "SB" following (to the right of) the volume scan time and date of the product for spot blanked products.
3. **PRODUCT DISPLAY CENTER:** This field, displayed in blue, contains the center of the current display in azimuth/range format.
4. **ELEVATION, ALTITUDE, BEGINNING HOUR AND DURATION, OR ELEVATION SEGMENT NUMBER:** This field, displayed in blue, contains, when appropriate, the product elevation, altitude, beginning hour and duration, or elevation segment number of the product currently displayed. The elevation represents the angle of the radar, in degrees above horizontal, at which the product data displayed originated. The altitude is used for layer products and indicates the altitude layer, above mean sea level, at which the product data displayed originated. For products generated from a single volume scan, the assigned time is the time the volume began. For products using data from a series of volume scans (e.g., VAD wind profile and storm total precipitation), the assigned time is the time the last volume scan in the series began. The elevation segment number indicates which clutter filter bypass/notchwidth maps were used to generate the Clutter Filter Control product. A 1 indicates the lowest elevation segment and a 2 indicates the upper elevation segment. The RDA adaptation data delineates the angle between the two segments. The beginning hour and duration apply only to the User Selectable Precipitation product and indicate the start time and number of hours of precipitation accumulation.
5. **STORM SPEED AND DIRECTION, END DATE AND END HOUR, OR CHANNEL:** This field, displayed in blue, contains the storm speed and direction of the product currently displayed above this field (if applicable). The storm speed and direction are displayed in knots and degrees for the Storm Relative Velocity products. End date and end hour are only used for the User Selectable Precipitation product and indicate the end of precipitation accumulation. Channel is only used for Clutter Filter Control products and indicates whether the Doppler or surveillance channel notchwidth map was used to generate the product.
6. **ALERT TYPE:** This field, displayed in blue, if applicable, contains the two-letter mnemonic of the weather alert that caused the generation of the product by the RPG. This applies only to the Severe Weather Analysis products. See Section 8.3.1 for the meaning of the mnemonics.
7. **HEIGHT OF PHENOMENON:** This field, displayed in blue, if applicable, contains the height of phenomenon which is displayed in thousands of feet, with Severe Weather Analysis products to provide the height at which the meteorological phenomenon occurred to cause generation of the product.

APPENDIX G

PRODUCT ANNOTATION/STATUS AREA OF GRAPHIC DISPLAY

(PARAMETER SELECT MODE)

Field Contents

1.	CURRENT DATE AND TIME
2.	PRODUCT NAME, MNEMONIC, AND ID NUMBER
	BLANK
3.	NO. OF DATA LEVELS OR CONTOUR INTERVAL
4.	RESOLUTION OR BLANK
5.	ELEVATION, ALTITUDE, LAYER, DURATION, ELEV SEGMENT NUMBER OR BLANK
6.	CENTER AZIMUTH OR POINT 1 AZIMUTH, CHANNEL, OR END HOUR
7.	CENTER RANGE OR POINT 1 RANGE
8.	STORM SPEED OR POINT 2 AZIMUTH
9.	STORM DIRECTION OR POINT 2 RANGE
10.	RPG MNEMONIC
11.	VOLUME SCAN TIME
12.	VOLUME SCAN DATE
13.	REQUEST PRIORITY
14.	REPEAT COUNT
15.	REQUEST MAPS
16.	BLANK OR ALL/ONE SWA
17.	CURRENT PARAMETER
18.	PARAMETER NAME BEING EDITED
19.	PREVIEW AREA
20.	ELEVATION ANGLE (DEGREES)
21.	WER SELECTION BOX
22.	CURSOR HEIGHT AND COORDINATES
	BLANK
	(THE FOLLOWING FIELDS ARE THE SAME AS FULL SCREEN PRODUCT DISPLAY - SEE APPENDIX D FOR THEIR DESCRIPTIONS.)
	PRODUCT QUEUE STATUS
	RPG PRODUCT STATUS
	SYSTEM STATUS
	GRAPHIC TABLET SELECTION
	FEEDBACK
	WEATHER ALERTS (UNACKNOWLEDGED AND ACKNOWLEDGED)

Product Annotation/Status Area of Graphic Display (Parameter Select Mode) Field Descriptions:

1. **CURRENT DATE AND TIME:** This field, displayed in yellow, contains the current date and time (GMT) to the nearest minute and is updated every minute.
2. **PRODUCT NAME, MNEMONIC, AND ID NUMBER:** This field, displayed in green, contains the name, mnemonic, and ID number of the product for which parameters are listed. The product ID number ranges from 16 to 90 and is used as a unique identifier for each combination of product category, data levels, resolution, and layer values. The product mnemonic is a one to three-letter mnemonic which is an abbreviation of the product name.
- 3-9. Fields three through nine are displayed in white and contain product parameters, as listed in this diagram, which are applicable to the product for which parameters are being chosen. See Table V for further descriptions of each product parameter.
- 10-12. Fields 10 through 12 are displayed in green and contain the product parameters as listed in this appendix diagram. See Table V for further descriptions of these product parameters.
- 13-15. Fields 13 through 15 are displayed in cyan blue and contain the product transmission parameters as listed in this appendix diagram. See Table V for further descriptions of these product transmission parameters.
16. **Blank or all/one SWA:** This on-line field is blank unless the operator selects all/one SWA. Upon this selection, the field contains the entry "All/One SWA."
17. **Current Parameter:** If the user is selecting a current parameter, this field will display the words "Current Parameter." Otherwise, this field will be blank.
18. **PARAMETER NAME BEING EDITED:** This field, displayed in yellow, contains the name of the product parameter currently being entered by the operator when in parameter select mode.
19. **PREVIEW AREA:** This field, displayed in reverse video yellow, contains the product parameter currently being entered by the operator from the keyboard area of the graphic tablet when in parameter select mode for this type of parameter.
20. **Elevation Angle (Degrees):** This two-line field is blank for all products except the weak echo region (WER) product. For the WER product, "Elevation Angle" appears on the first line and "Degrees" appears on the second line.
21. **WER Selection Box:** This two-line field displays nine elevation angles in a three-by-three box. See Section 4.1.2.6 for instructions on selecting elevation angle to plane assignments.
22. **Cursor Height and Coordinates:** If the cursor is linked to the other screen, then this field will be blank. If, on the other hand, the cursor is linked to this screen, then one of the following three will appear: 1) A/R (Home), 2) A/R (RDA), or 3) CUR.L/L. Since there is no product on the screen, azimuth, range, or altitude will not be displayed.

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APPENDIX H

PUP SYSTEM FUNCTIONS

1. **REBOOTING THE OPERATING SYSTEM.** Perform the following steps to reboot the operating system on the PUP and have the applications software automatically loaded and started.

STEP	PROCEDURE	RESPONSE/COMMENTS
1	At the applications terminal enter S,A<return> to examine the status of the archive function. If the status is NOT ACTIVE skip to step 3.	Status of Archive screen is displayed.
2	At the applications terminal enter A,C,A<return> to cancel all archive functions.	The archive function is canceled.
3	At the PUP System Console at the * prompt enter PUPDOWN<return>. If the message CANCEL ARCHIVE BEFORE BRINGING PUP DOWN is displayed, enter MOUNTOFF<return> then repeat step 3.	The message ***PUP SOFTWARE IS DOWN*** is displayed.
4	At the * prompt enter ERR LOG,OFF<return>.	The * prompt is displayed.
5	At the * prompt enter MA DSC0:,OFF<return>.	The * prompt is displayed.
6	At the * prompt, hold down the CTRL key and press the V key twice, then press the <return> key several times.	The CDS> prompt appears.
7	At the CDS> prompt enter KEY 1,PUP<return>.	The CDS> prompt is displayed.
8	At the CDS> prompt enter HA<return>.	CPU HALTED and the CDS> prompt are displayed.
9	At the CDS> prompt enter PO OFF<return>.	The CDS> prompt is displayed.
10	At the CDS> prompt enter PO ON<return>.	After a few seconds, messages will begin to appear indicating the PUP system is coming back up. After about 2 minutes, the message ***PUP SOFTWARE LOADED AND STARTED*** will be displayed and the graphic screens will clear. The PUP is now operational.

2. **RELOADING AND RESTARTING THE PUP APPLICATIONS SOFTWARE.** To reload and restart the PUP applications software, enter the following:

- a. PUPUP (return) after the * prompt by the Operating System on the PUP System Console. The PUPUP CSS will also perform an automatic rebuild of the PUP product data base index pointer tables. These pointer tables are used by the applications software to access each individual product stored in the data base. If it is believed these pointer tables have become corrupted the operator can simply enter the PUPDOWN command, followed by the PUPUP command to force a rebuild of the index pointer tables. Symptoms of possible index pointer table corruption are invalid data displayed on the (S)TATUS,(T)YPES OF PRODUCTS display, invalid information on pick-a-product displays, or SOFTWARE STAT messages reporting error numbers in the range of 550-599.

If the applications software was already loaded and started then

- b. PUPDOWN (return) (after the * prompt) must first be entered to cancel the applications software.

If the applications software was already loaded and started when another PUPUP command is issued, then some *LOAD-ERR messages will appear from the operating system indicating that a PUPDOWN must first be entered.

3. **SETTING THE SYSTEM TIME.** Perform the following steps to set the time and date of the PUP internal hardware clocks. A source for Coordinated Universal Time (UTC) is (303) 499-7111. Always enter the time as UTC at the top of the minute (0 seconds).

STEP	PROCEDURE	RESPONSE/COMMENTS
1	At the "*" prompt on the PUP System Console, hold down the CTRL key and press the V key twice, then press <Return> until the CDS> prompt appears.	CDS> prompt appears.
2	At the CDS> prompt, enter KEY 1,PUP<return>	CDS> prompt appears.
3	At the CDS> prompt, enter TI U,day,mm/dd/yy,hh:mm,P NOTE: DO NOT PRESS THE RETURN KEY.	day= first three letters (e.g. TUE) mm= 2 digit month (01-12) dd= 2 digit day (01-31) yy= 2 digit year (e.g. 96) hh= UTC hour (00-23) mm= 2 digit minute (00-59) Be sure to enter time as UTC.
4	At the tone from the time source corresponding to the time entered in step 3, press <return>.	CDS> prompt appears.
5	At the CDS> prompt enter TI<return>.	Verify CDS clock time and date are correct. If date and time are incorrect return to step 3.
6	At the CDS> prompt enter CON and press <return> several times.	* prompt appears.
7	At the * prompt enter SE TI ON<return>	Synchronizes the two PUP internal clocks. The * prompt appears.
8	At the * prompt enter D TI<return>	Verify that the clock time and date are correct. If date or time are incorrect return to step 1.

4. **SYSTEM CONSOLE MESSAGES.** During normal PUP operation and while the monitor performance function is not active, no messages should be displayed on the PUP system console display. When monitor performance is active, however, two messages are displayed each monitor performance period. Each message begins with the phrase "IREAD>". These messages are part of normal operation of the PUP during performance monitoring. Any other system console message usually indicates some type of problem. This message should be recorded, then a reference made to the OS/32 System Messages Reference Manual (Document 48-471 F00 R00) for its meaning and the action to take, if any.

During execution of the PUPUP sequence, many lines of information are displayed to the system console. The majority of this text indicates normal operation. However there is a message generated by the index pointer table rebuild process (see 2a. above) which requires action on part of the operator. The message is:

PRODUCT FILE CANNOT BE REBUILT, STATUS = xx
RECOMMEND CLEARING THE PUP DATABASE.

Should this message be observed while the PUP software is coming up, the PUP product data base should be cleared using the applications terminal command <PASSWORD>,CLEAR. Refer to section 4.15.2 for details on the operation of this command.

5. **OPTREAD UTILITY.** The OPTREAD program is a utility that can be used to determine the products, status messages and maps that have been stored on an Archive III or Archive IV optical disk. Version 4.2 of OPTREAD is compatible with optical disks created with WSR-88D software build 6.1 and later. The program is run from a PUP system console. The PUP applications software may be up or down while using OPTREAD, but NO ARCHIVE FUNCTION CAN BE ACTIVE WHILE OPTREAD is running.
- 5.1 **LOADING THE OPTREAD SOFTWARE.** The only files needed to run OPTREAD are OPTREAD.CSS and OPT.TSK and A4CD.IMG. These files are normally loaded in as part of PUP software installation procedures from the PUP Applications Software SCSI streamer tape.
- 5.2 **RUNNING THE OPTREAD PROGRAM.**
1. At the PUP applications terminal check the status of the archive function by entering the

- S,A command. If the archive function is active, it must be canceled before proceeding. (The A,C,A command will cancel archiving.)
2. Load the Archive III or Archive IV disk in the PUP's optical disk drive, turn the handle and push the button. The button will blink then stay steady green.
 3. At the PUP system console enter OPTREAD [filename]<return> to start the OPTREAD program. Including a file name after OPTREAD is optional. If no file name is included then all information will be output to the console only. If a file name is included, and, if option (A) under main menu item (2) is selected, the list of products will go to the file instead of the console. The file name must be a standard OS/32 file name: 1 to 8 characters with a 0 to 3 character extension. A new file with that name will be created on the hard disk. Therefore, do not use the name of a existing file which you want to keep. When OPTREAD is exited and the PUP software brought down, the file can be transferred to a system with a printer.
 4. The main menu will display seven choices: **Do not attempt to remove the optical disk before executing menu option 0, EXIT PROGRAM!**

* OPTREAD

```

*
*   SELECT A NUMBER:
*
*   (1) LIST PRODUCT FILE NUMBERS, DATES AND TIMES
*   (2) LIST PRODUCTS IN A FILE
*   (3) LIST THE RPGS FOR WHICH MAPS ARE STORED
*   (4) LIST MAPS AVAILABLE FOR A SPECIFIC RPG
*   (5) SEARCH FOR A SPECIFIC PRODUCT
*   (6) SEARCH FOR DATA GAPS
*   (0) EXIT PROGRAM
*O>

```

The following describes the seven main menu choices:

(1) LIST PRODUCT FILE NUMBERS, DATES AND TIMES -- This will display all product files on the optical disk. A product file on the optical disk is not the same as the PROD.DAT file in the PUP data base. An optical disk product file can only hold up to 200 products and/or blocks of status messages. Product files are numbered beginning at 1 and proceeding up to 500 as necessary. Product file number 1 contains the group of products and/or status messages that were first archived to the disk, file number 2 is the second group, etc. Each product file number is listed along with the date and time of the earliest and latest product or status message contained in each file. The header displayed when this menu item is selected indicates whether the disk is an Archive III or Archive IV disk, and how many data blocks remain on the current side of the disk. It is possible that files may not be listed in numerical order. They are listed in chronological order, based on the earliest date/time.

(2) LIST PRODUCTS IN A FILE -- Selecting this menu item will cause a second level menu to be displayed prompting the user to choose one of two options: (A) LIST THE PRODUCTS IN ONE FILE or (B) LIST THE PRODUCTS IN A RANGE OF FILES.

If option (A) is selected the user will be prompted for the file number to be examined. The product file numbers can be obtained by selecting main menu option (1) as described above. The contents of the selected file will then be output to the screen, one page at a time. One product file can hold up to 200 products and/or status message blocks. Recall that some products have a graphic portion and a paired alphanumeric portion (e.g. Mesocyclone, Hail Index). A product listed with a lower case letter "a" next to it indicates a paired-alphanumeric product. A product listed with an asterisk (*) next to it indicates an annotation for that product. Annotations are stored separate from their associated product.

If option (B) is selected the user will be prompted to enter a range of file numbers. The contents of the selected files will then be displayed to the screen in a continuous stream of data. As is the case for option (A), a product listed with a lower case letter "a" next to it indicates a paired-alphanumeric product. A product listed with an asterisk (*) next to it indicates an annotation for that product.

(3) LIST THE RPGS FOR WHICH MAPS ARE STORED -- This will list the mnemonic of each RPG for which archived maps were found. This menu option must be selected before menu option (4). If an RPG mnemonic displays as a three-digit number it indicates that maps were found from an RPG which the current version of OPTREAD does not recognize. The three-digit number is the RPG ID number. If a complete map set is found for a particular RPG, the phrase "Auxiliary Map Set" will be displayed next to the RPG mnemonic. These map sets are capable of being auxiliary map sets and read into a PUP system for that purpose.

(4) LIST THE MAPS AVAILABLE FOR A SPECIFIC RPG -- This will prompt the user to enter an RPG mnemonic, then it will list the map types found for that RPG. For this menu option to work, menu option (3) must have been selected previous to this option. For auxiliary map sets, the list of all map types will not be produced. Note that OPTREAD may generate the error message GENERAL I/O ERROR, I/O STATUS=144 when this function is selected. The error does not effect the output of the program and should be ignored.

(5) SEARCH FOR A SPECIFIC PRODUCT -- This will prompt the user to enter a product name (e.g. R for base reflectivity), product data levels, product resolution, product time and product date. Using this information, the program will search the entire side of the optical disk for the product file

numbers that contain that product. All file numbers that contain the product will be displayed (there may be more than one).

(6) SEARCH FOR DATA GAPS -- This function can only be performed on an Archive III optical disk. An error message will be generated if this function is selected while an Archive IV disk is loaded. This function will search the current side of the optical disk for data gaps in excess of 14 minutes. If a gap is found, a message will be generated on the screen and in a file saved on the hard disk. The user will be prompted to input the file name before the search begins. **DO NOT** use the same name as the optional file name used when OPTREAD is started (see step 3 above). The file name must be a standard OS/32 file name: 1 to 8 characters with a 0 to 3 character extension. This search process may take up to 5 minutes for a full side of an optical disk. When OPTREAD is exited and the PUP software brought down, the file can be transferred to a system with a printer.

(0) EXIT PROGRAM -- This will stop the OPTREAD program and mount off the optical disk. The disk may then be removed from the drive. **DO NOT ATTEMPT TO REMOVE THE OPTICAL DISK WITHOUT FIRST EXECUTING THIS MENU OPTION.**

5.3 POTENTIAL PROBLEMS USING OPTREAD.

If, after typing OPTREAD at the system console, the message "Shared segment mapping failed" is displayed, the version of OPTREAD is not compatible with the version of PUP software. A compatible version of OPTREAD must be obtained from the OSF.

If the OPTREAD program is canceled (using OS/32 "CA" command) for any reason, it is possible that the optical disk will be left mounted on. This will prevent any subsequent PUP archive commands from working. To remedy this problem, after canceling the OPTREAD program, always remember to run the MOUNTOFF CSS by entering MOUNTOFF<return> at the system console. This is not necessary if the OPTREAD program is terminated using menu option (0) as described above.

The OPTREAD program uses the index files on the optical disk to determine which products are on the disk. Normally, each index file has a corresponding data file. It is this data file that actually contains the product data itself. If, for some reason, the corresponding data file does not exist, the OPTREAD program may indicate that a product exists when, in fact, the product does not exist on the disk.

If you are having trouble entering specific product parameters for main menu item (5), remember, some products may display on the PUP graphics screens in 16 data levels but do not have data levels as an applicable parameter (e.g. VIL and STP). For products such as these, enter a 0 (zero), for "not applicable", when prompted for the product data levels. An easy way to test which parameters are applicable is to use the D,G,<product name> command at the PUP applications terminal and see which parameters the edit screen will permit you to enter. The parameters that allow you to enter are the applicable parameters.

It is possible OPTREAD may indicate that the earliest and latest date/time on one side of an archive disk overlaps the earliest and latest date/time on the opposite side. This overlap is caused by status messages on the archive disk. The status messages are stored in blocks of 48 messages which may span up to 30 minutes in time. If the disk is changed within 30 minutes of the writing of a status message block, status messages on that side of the disk may precede the oldest product data on the previous side.

Version 4.2 of the OPTREAD program was written to support optical disks created by WSR-88D software builds 6.1, 7.0, 8.0 and 9.0. Other WSR-88D software releases may not archive in a format compatible with OPTREAD Version 4.2.

6. BACKFILE UTILITY. The BACKFILE program is a utility that can be used to execute the most commonly performed backups, from hard disk to tape, using one command. This utility can be run from a RDA, RPG or PUP system. The CSS provides the operator with two optional parameters. The command BACKFILE entered at the system console without any parameters will select predetermined files depending on which system (RDA, RPG or PUP) is used. BACKFILE used at a PUP will also determine if the PUP is configured as a Switch PUP. Note that a Switch PUP is a specially con-

figured PUP with additional hardware and software that allows association to two different RPGs at different times. If using BACKFILE at the PUP, applications software must be down.

6.1 Loading the BACKFILE software. The files needed to run this utility are BACKFILE.CSS and BACKUP.TSK. These are normally loaded in as part of the system installation procedures.

6.2 RUNNING THE BACKFILE PROGRAM

1. Ensure the system is down. If not, bring the PUP down (PUPDOWN) before preceding.
2. Ensure the write protect is off and load SCSI tape into the PUP tape device drive.
3. At the system console enter BACKFILE along with the desired options, if any, to start the BACKFILE utility. The following describes the usage of the BACKFILE CSS and the available options:

BACKFILE [CON:] [,NV]

a. BACKFILE without any options performs a backup and verify of predetermined RDA, RPG, PUP or Switch PUP files. The PUP and Switch PUP specific files are:

PUP	Switch PUP
ADAPT.DAT	ADAPT.-
BACKGRND.DAT	BACKGRND.-
EBMFILE.DAT	EBMFILE.-
UFILE.DAT	UFILE.-
DEFAULT.OS	DEFAULT.OS

b. [CON:] Optional parameter which allows the operator to enter desired file names from the system console. Enter a ./ to mark the end of data being entered.

c. [,NV] Optional parameter which allows the operator to run the BACKFILE CSS without the verify option. When selected with the CON: option be sure to enter ./ to mark the end of data being entered. If using this option the program will not ensure all files were copied.

4. An END OF TASK 0 indicates successful completion of the BACKFILE utility. Remove the tape from the tape drive. Affix a label with the file names and date to the tape and store the tape in a safe location.

APPENDIX I

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